Project Report

Environment and Natural Resources Institutionalization in the 50 States: Organizational Charts Clarify Roles and Relationships

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Abstract

This report provides original and unique organizational charts to describe and explain institutional conditions regarding environmental and natural resources (ENR) in each of the nation's 50 state governments. It also includes some summarization and categorization of state ENR institutions and structures to illuminate and encourage readers to consider considerable differences among the states. Findings focus on (1) governing, and particularly gubernatorial, jurisdiction, (2) ENR organizational classifications, particularly the incidence and scope of integrating ENR organizations, and (3) review of selected ENR functions to understand their administrative conditions in terms of these conditions. Information provided on the charts and in the report is important because ENR institutionalization can impact direction, resource allocations, program thrust and outputs, interrelationships with federal and local ENR entities, and environmental outcomes. To date, inadequate information has been available to understand state ENR institutionalization, and instead has focused on narrowly-focused agencies and functions. Accurate and current information about broad ENR conditions and appropriate state ENR entities can help federal agencies and others develop strategies and programs to help work more effectively with states.

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1. Introduction

The United States faces increasingly complex, interdependent and time-sensitive problems concerning the environment and natural resources (ENR). While these problems become more severe, fiscal resources are diminishing and institutional capacities are stretched to new limits. Society's growing concerns are increasingly reflected by public sector action, however various agencies at the Federal, State and local level seem to frequently address common problems in an independent, simultaneous and fragmented manner.

With time, more and strengthened legislation, regulations, plans and policies are adopted, with accompanying organizations, programs and resources established and empowered to manage, implement and enforce direction. Accordingly, an increasing, and often confusing, overlapping and even conflicting array of Federal, State and Substate entities carry out ENR activities in the United States.

State governments are in crucial positions within our nation's form of governance because they must respond to their constituency, but also Federal directives and local governments demanding increasing attention to often multijurisdictional problems. Internal and Federal direction are reflected uniquely within each state, resulting in differing ENR structures, organizations, and relationships. Moreover, roles, responsibilities, functions, funding and activities can differ significantly by state. These conditions can result in often difficult and inadequate relationships between federal and state agencies.

Accordingly, this report was initiated and designed to provide original and unique organizational charts to describe and explain institutional conditions regarding ENR in each of the nation's 50 state governments. It also includes some summarization and categorization of state ENR institutions and structures to illuminate and encourage readers to consider considerable differences among the states.

2. Background and Context

Five distinct areas influence conditions portrayed in the organizational charts and provide useful trends and insight to support the project approach and content, including:

* States in Our Federal System of Governance
* Decentralization of Governance
* State Government Institutions and Structures
* Coordination of Environment and Natural Resources (ENR) Functions
* Information and Related Technologies

Each area is discussed below, including findings and insight from related research.

2.1 States in Our Federal System of Governance

The United States Constitution clearly defines the nation's system and structure of governance, known as "federalism". Governments share in the balance of power and roles, in contrast to a unitary system where a nation's central government is dominant and defines subnational and local government authority and roles. In the U.S., both States and the Federal government have unique authorities and roles, with each level

having supremacy in certain areas. Many localities also exert roles and authorities as authorized by state statutes or home rule provisions. Accordingly, numerous governmental actors address related issues, with each having unique directives and programs.

"New federalism" has devolved federal authority to states and localities in many areas of public policy since the 1970s, resulting in shared implementation of many federal programs. Recent and expected federal legislation such as the 1990 Clean Air Act sets minimum national standards and objectives, while states have strengthened roles, responsibilities and discretion to design and implement their own laws and programs. (Lester, p. 52) Furthermore, some federal legislation finances state programs where federal jurisdiction is limited, such as forestry programs on private lands. In these cases, States serve as "arms" of the Federal government, with "State clones" established or empowered to implement Federal legislation and programs. Some states appear to replicate federal organizational models in some program areas. Approximately one-third of state entities are "thought to have been established primarily, if not solely, because of federal influence over the years." (Chi, p. 35)

Growing relative importance of States in our nation's governance is also evidenced by a "state renaissance". States are increasing their leadership, capacity, and initiative and innovation in forming and implementing policy objectives. (Kamensky, p. 47) States are becoming important actors in new areas, including those of traditional Federal domain, such as international trade and regulation of the environment and commerce, and have largely defined and implemented the domestic agenda since the 1980s. (Ibid., p. 49) Accordingly, states establish and empower institutions with roles, responsibilities and programs to accomplish state, as well as federal agendas.

2.2 Decentralization of Governance

An overarching trend influencing governance today and the focus of this project is that of increasing decentralization of decision making and operations. In the United States, this can be considered as the shift of authority, roles and responsibilities from the federal government downward to state and local governments, but also from governments to markets, the private sector and non governmental organizations. Three types of decentralization have been defined, including (1) political, concerning the scope of decision making authority and discretion regarding policy and resource generation and allocation, (2) administrative discretion such the discretion allowed field offices by central offices (thus impacting Federal agency relations with States and others), and (3) economic, concerning the location of activities, for example whether in the hands of government (such as service centers) or dispersed through the market. (Wolman, p. 29)

Rising incidence and concern with federal mandates are evidence of the importance of distinctions between decentralization and federalism. Unitary governments may have decentralized decision making, while federal systems can be centralized. It has been argued that some U.S. Federal government actions decentralize governance, but do not necessarily strengthen the role of states, resulting in increasing federal mandates. The rise of federal mandates, and particularly those that are unfunded, is a priority concern of many state and local governments. Concerns include that "while many of these federal mandates represent vital public policy objectives, they often prescribe a 'cookie cutter' remedy that fails to recognize competing local priorities or even less expensive alternatives". (Moran, p.2) State and local documentation of the costs of mandates are raising attention to this issue. For example, the Virginia General Assembly recently

determined that 20% or about $2.8 billion per year of the state budget is driven, defined or constrained by federal laws, regulations or agency actions. (Ibid, p. 2) Environmental protection is perhaps the most frequent areas of mandate concern. (Ibid, p.2)

Decentralization trends are complimented by other trends. For example, there is an increase in the perceived importance of public input in public decision making and governmental focus on the citizen (ie. client or customer). Environmental legislation increasingly provides for public participation, though effectiveness has been limited in many programs. Public discontent and distrust of government is increasing. Governments are responding for example, with open meeting laws, term limits, citizen and neighborhood groups, and attempts to provide more access to government information. Other trends reflecting and complimenting decentralization include growing fiscal constraints, perceived need for and reduction in the size of bureaucracies, authorization and empowerment of interorganizational groups, "privatization" of government services, and an increase in non governmental organizations also providing public services.

2.3 State Government Institutions and Structures

Much public policy research addresses the development and content of policy and directives. However, there is growing demand and attention to examining the implementation of policies and programs, particularly institutional capacities and capabilities. (Bowman and Kearney, p. 342.) The importance of institutions and structure in governance is often cited, with both political and administrative consequences, including reflection of a "pattern of influence" and allocation of financial and human resources. Existence of a "discrete, identifiable entity" with assigned responsibility indicates that "some combination of legal, political, fiscal and organizational actions have produced an administrative result". (Jenks and Wright, p. 79) It means that in some degree a particular activity has been authorized and institutionalized and an entity has a "jurisdictional domain." (Ibid, p. 79) Essentially, institutionalization is needed to implement public policy.

The growing importance of States, due to their own initiative and Federal influence as discussed above, is evidenced by the "transformation of their institutional capacities". Examples of State maturation include their revising constitutions, professionalizing legislatures, strengthening governor's offices, reorganizing executive branches, reforming courts, increasing revenues through tax diversification and providing greater opportunities for citizen participation. (Lester p. 53) Various types of Executive branch reorganizations have been considered and implemented. The national trend is toward reduction of the number of departments, agencies, boards, commissions, and to a lesser degree, elected officials. Agencies with related functions are being consolidated within a cabinet or under a secretary, in effect reducing the number of individuals reporting to the governor, while expanding gubernatorial jurisdiction. (Chi, p. 34)

Reorganization of State government is difficult, time consuming and infrequent, and sometimes implemented changes may only partially reflect proposals. Accordingly, many states continue to have over 100 independent agencies, boards and commissions, even after reorganization. Not all functions are directly under the Governor's jurisdiction, as these groups or other elected officials may lead them. Knowledge of the impact of these separate jurisdictions is limited. Roles and responsibilities frequently seem shared, duplicated, unclear, defacto, or non existent in individual states.

Changing roles and relationships of executive branch departments and agencies can require altering legal foundations, such as constitutional and statutory provisions and executive orders. Aside from obvious practical difficulties in changing directives, many stakeholders desire maintenance of the status quo to preserve autonomy and direct linkages to elected officials and funding sources. (Conant, p. 5). These conditions, in addition to state entrepreneurship and federal influences described above, result in each State government's structure being quite different, and difficult to place into organizational models and categories. Comparisons and evaluations are even more difficult. Despite impediments, states are undergoing institutional change, particularly to enhance effectiveness and efficiency. (Chi, p. 33)

Calls for new models of governance, including "reinventing government" can result in more flexible and decentralized bureaucracies. Self-examination heightens awareness of often redundant, overlapping and sometimes conflicting mandates and programs. This attention seems to invigorate efforts to coordinate and possibly consolidate programs and activities with similar functions, and collaborate with similar federal and local agencies. In addition, states are establishing coordination processes and mechanisms that do not require structural changes, such as interorganizational groups and agreements, and data centers and clearinghouses. For example, approximately 30 states have interagency councils to coordinate human services delivery. (National Governors' Association, p. 3)

2.4 Coordination of Environment and Natural Resources (ENR) Functions

Societal and government direction toward integration and coordination of environment and natural resources (ENR) planning and management is increasingly demanded and evidenced. Related international, Federal and State organizations alike increasingly identify "ecosystems management" as an important goal. A recent survey of States found there is a "substantial statutory foundation in a mosaic of statutes that legitimates, in varying degrees, an integrated approach to addressing ENR issues and problems." (Born, p. 5)

However, coordinated ENR implementation seems stymied. One limitation seems to be lack of common definitions, understanding and consensus regarding both goals and approach. A key obstacle is the programmatic and fragmented nature of public organizations, largely due to incremental political processes and narrowly-focused legislation directing agency activities. The traditional, and institutionalized, approach to ENR has largely been fragmented, reactive, and for narrow purposes, areas and problems. Programs typically address individual concerns and needs. For example, regulations are often enforced and permits issued regardless of other media and pollution impacts. Relationships between ENR and larger issues, needs and programs have received inadequate consideration. (Born, p. 2)

Some evidence of state leadership in ENR exists, particularly in relation and compared with the federal government. For example, States are developing "cross media" plans, environmental assessments and comparative risk analyses to address ENR more broadly, including understanding various pollution problems and their interrelationships. Comprehensive approaches are identifying unmet needs, and prioritizing and integrating programs and solutions to problems. Some states initiate ENR legislation and programs in areas lacking Federal policy, such as groundwater protection and solid waste management, or are adopting and implementing stronger standards than provided in federal legislation. States are also taking action such as acquiring and protecting lands for habitat, and even suing Federal agencies to follow established State authority in certain areas, and federal and state environmental laws.

Some state ENR institutions and structures also reflect state leadership and integrating approaches. Reorganizations are commonly initiated to help save and maximize resources, minimize redundancies and duplication, minimize permitting time and complexity, and respond to calls for biodiversity protection, pollution prevention, and environmental ethics. However, as described above, many state ENR functions seem fragmented and the responsibility of various entities. Some states have implemented mechanisms to facilitate coordination, including inter- and intra- agency groups, common data standards, consolidated permitting offices and clearinghouses to facilitate data sharing for joint problem solving and implementation of solutions.

Most research on state ENR has analyzed individual Federal acts, focusing solely on regulatory programs administered by the U.S. Environmental Protection Agency, rather than those that provide services or information. Other research addresses individual natural resources, such as forestry or wildlife, also to the exclusion of others. Such approaches provide in depth analysis of individual ENR programs, including some useful evaluation of Federal-State relations and problems. However, this narrow conceptual scope can serve to reinforce fragmented, rather than considering integrated approaches to ENR. In addition, quantification and comparison of singular ENR functions, programs, and resources may erroneously eliminate some State activities if not aligned with related Federal programs. In general, most state ENR research has conducted limited inventory and investigation of state institutional conditions and structures. Accordingly, existing research has not addressed fragmentation, overlap and confusion in State ENR responsibilities and State-Federal ENR relationships that, as described above, are a primary reason for this project.

2.5 Information and Related Technologies

Through time, multiple forces impact the organization of ENR functions in state governments, however emergence, and implementation, of the "information society" seems to have new influence on government institutions and structures. While research is limited in this regard, this impact seems due to the increasing use and importance of information itself, and information technologies to understand and solve government problems, and provide services more effectively and efficiently. A recent resurgence in land use planning is increasing demand and availability of information. While computers have been widely used in government since the 1970s, they were mainly used to automate existing administrative processes.

More recently, development and use of technologies enabling information to be displayed geographically seem to change how government works, and in turn impacting institutions and structures. These geographic information (GI) technologies, such as geographic information systems (GIS), remote sensing, and the global positioning system (GPS), enable existing and new knowledge and programs to be seen on maps. Redundancies, overlaps, gaps and potential conflicts in mandates, policies, directives, programs and data can be observed in ways impossible without these technologies. GI/GIS impact is particularly obvious for ENR functions as they are often organized in a fragmented manner, as described above. Automation of information systems, and particularly GIS, can exacerbate or improve many of these conditions. Awareness of the confusion and potential waste of resources associated with the multitude of involved governmental entities can lead government leaders to take action. Proactively utilized, geographic information and related technologies can promote clarification, collaboration, integration, resolution of differences and enhance processes to solve common needs and problems.

Research is limited about the organizational and federalism impacts of information and information technologies, however suggests that geographic information and technologies may have greater influences. Establishment of state and departmental general information and GI/GIS coordinating offices provides evidence of institutionalization. (Warnecke, p. 1) Locations and elevation of these offices within state government structures provides some evidence of impact, yet influence on government outcomes is more limited. Overall it is suggested that information and related technologies impact institutions and structures by serving to reinforce integration trends.

3. Scope and Caveats

The scope of this project was defined to clearly, comprehensively and consistently identify and diagram institutions and structures for a broad array of environmental and natural resources (ENR) functions in the Executive branches of the 50 states. The charts display these administrative conditions current at only one point in time, as of July 1, 1994. This date was chosen because July 1 is the effective date of most organizational changes in state governments as this date begins most state fiscal years. By portraying this information on individual organizational charts prepared for each state, representations only reflect formal divisions of authority and work, and corresponding organizations with resources allocated to meet their missions. This project can not provide evaluation or judgement concerning these conditions or entities, or their origin, causation, connectivity or impacts. Though the charts can not practically show interorganizational groups or informal networks unless they have an official staff support entity, groups and networks increasingly influence the manner in which work is conducted.

A broad and inclusive definition of and approach to ENR scope was chosen based on the following criteria. Review of all state government functions and entities identified those with their primary function related more to ENR than any other category of State government functionality. Another criteria was that all of the included functions be organizationally located under a ENR agency in at least one state. Thirdly each of the selected functions, as listed below, are considered relevant in environmental reviews of proposed projects and natural conditions.

* Natural resources management and regulation,
* Environmental protection and regulation,
* Conservation,
* Water resources, including quantity, quality, surface and ground,
* Biological resources, including wildlife, fish, game, Natural Heritage Program and state biological surveys,
* State geological surveys,
* State forestry organizations,
* Public land management, including state parks,
* Waste management, including low level and solid waste,
* Air monitoring and quality,
* Coastal resources,
* Energy, including oil, gas and mining regulation and reclamation,
* Agriculture, and
* Cultural resources, including historic preservation offices and state archaeological surveys.

An inclusive ENR scope also accommodates for States having differing definitions for identical terms. Words used in the names of agencies have varying meanings in different states, markedly impacting and often confusing understanding of the roles and activities of similar, but different agencies. "Natural resources", "environment" and "conservation" are each used to describe broad ENR agencies in some states, while are more limited in scope in others. Confusion is particularly evident as "natural resources" can include "environment" programs in one state, while "environment" can include "natural resources" in another. Essentially, these three terms can be interchangeable, and their use should be considered on a state-by-state basis to understand the scope of ENR organizations.

State differences, logistical requirements and limited space on each 8 1/2 by 11" page narrowed the scope to Executive branch line departments, agencies and their suborganizations, with focus on those with implementation rather than policy setting roles. Additional State entities influence ENR policy and implementation, but were not included due to project and space limitations. Examples include State Legislative Committees and staffs, Gubernatorial policy advisors, and interagency groups that directly or indirectly influence some or all aspects of ENR. Some broad State groups and offices also impact ENR, such as those addressing land use planning, economic development, growth management and rural development, but are not included in the charts unless one of their suborganizations is responsible for an included ENR function. Some agencies having ENR offices such as transportation and health departments are not included because ENR is not their primary function. However, health departments having suborganizations with responsibility for a selected function are included. Significant efforts were made to include all State entities with ENR roles, however some related boards and commissions might not appear as states can have up to 400 individual entities. The processes used to develop the charts provided many examples of State government organizational charts and directories not including some of their own relevant boards and commissions.

With the overall goal of providing the reader clear and consistent charts, additional efforts were needed to minimize the number of boxes and words on each chart. In some cases a box or two in a "chain of command" or suborganizations with general administrative, legal and enforcement roles are not included to make room for other boxes. In addition, many entities with sub-state or interstate roles are not included, unless large or unique administrative units or specifically requested to be included by an individual state. The names of states were eliminated from entity titles as they are obvious. In addition, the sequence of words used in titles were altered to provide the functional name first, such as "natural resources", then followed by the administrative unit such as "department", thus eliminating the space needed for repeated use of the word "of". Abbreviations are used when necessary, but appropriate care was taken to avoid confusion if used.

4. Methodology

The project was conducted using various sources and concurrent phases as described below and simultaneously with a project to prepare similar organizational charts identifying entities with environmental and natural resources roles and activities in each state government.

Phase One: Synthesis of Available Data

The principal investigator's existing written materials and notes from past surveys of officials in the 50 states were synthesized beginning in the fall of 1992, forming a knowledge base concerning the identity, functions and activities of various agencies, departments and offices in each state. In addition, lists and publications of various State and ENR associations, federal agencies, and others were obtained.

Phase Two: Original Data Collection

Existing materials were updated and supplemented by original data gathered from at least one and sometimes more officials in each state. This effort began in May, 1993 as a supplement to a short questionnaire used by the principal investigator for a related survey conducted for the Mapping Sciences Committee of the National Research Council. Each state was asked and sent organizational charts noting the administrative location of all (1) Executive branch State government entities with GI/GIS roles and activities, and (2) Executive branch State government entities responsible for a list of specified ENR functions, whether or not they are using GIS (see list above).

Some states required additional collection of charts from original contacts or additional state officials. This phase of data collection was completed in January, 1994. In total, at least two organizational charts were collected from each State, including (1) a Statewide chart for the entire Executive branch, and (2) at least one but often more charts for each State agency with ENR responsibilities.

Phase Three: Data Analysis and Charts Preparation

Gathered organizational charts were compared with external lists and publications of ENR entities to verify accuracy, and understand and reconcile differences. State officials were queried to ensure adequate knowledge to prepare charts, and to be aware of any pending changes that should be checked and incorporated before project completion. Beginning in November, 1993 and completed in March, 1994, two charts were designed and hand drawn for each State incorporating all available information on a 8 1/2" by 11" sheet of paper. An associate reviewed and enhanced each chart for visual understanding, and prepared them in digital form using OrgPlus for Macintosh, Version 1.00.

Phase Four: Verification and Finalization of Prepared Charts

Hard copy output of the automated versions of the charts were submitted to state officials for verification between February and April, 1994. At least one official per state provided comments and verified the accuracy of the charts, with corrections incorporated in final versions. All known 1994 Legislative actions impacting the charts were incorporated, with final changes completed in June, 1994. The charts can be considered accurate and current as of July 1, 1994.

Phase Five: Analysis of Charts and Report Preparation

This report was prepared to provide useful information about background, scope, methodology and findings to assist the reader's use and interpretation of the charts. The charts were analyzed using simple statistical methods to tabulate frequencies and relationships of various entities and functions. Tables were developed and are included to help the reader understand differing conditions among the states and to provide summaries, conclusions and implications when possible.

5. Findings

The organizational charts were designed and prepared to enable the reader to use and analyze them in many individual and different ways. Understanding their scope and caveats as described above, the charts stand alone as findings and summaries about institutions and structures in each of the 50 states concerning environment and natural resources (ENR) functions.

Some tabulation and analysis was also conducted to illuminate differences and to encourage the reader to consider them in working with states. Specific attention was given to the following three areas which are discussed in the following sections and tables in the report.

* Governing, and particularly gubernatorial jurisdiction,

* ENR organizational classifications, particularly the incidence and scope of omnibus ENR organizations, and

* Selected ENR functions to understand their administrative conditions as a result of the above and their unique scope and issues.

These areas of analysis were selected because (1) they can be definitively quantified and measured, (2) they fit within the context of related research on state institutional capabilities, and (3) related changes and trends have been identified by others. Accordingly, future efforts like this project can conduct similar tabulations and analysis to identify relevant changes.

Preparation, review and analysis of the organizational charts confirmed the validity of the selected list of ENR functions as providing a comprehensive scope of ENR responsibilities and functions in the nation's 50 State governments. The charts show all State entities responsible for each of these functions, however for most states and functions it was only necessary to show one entity. Calculations shown in the tables eliminate the states and functions for which roles are shared and a lead entity can not be determined.

5.1 Gubernatorial Jurisdiction and Reporting Relationships

While logic would predict otherwise, not all ENR functions in State governments are under the jurisdiction of the governor. Instead, state agencies can report to other elected officials, independent groups, or be located in academic institutions, where direction and funding is outside the governor's jurisdiction. If under the Governor, ENR functions can be under differing organizations and functions, and at differing hierarchial levels. Alternative jurisdictions are discussed below, with results for some functions summarized in Table 1.

* Direct Gubernatorial Jurisdiction: The majority of states have virtually all ENR functions administratively located within a broader department or agency whose director is appointed by and serves at the pleasure of the Governor, with the exception of Agriculture. The number of entities or "steps" between the Governor and these functions can be determined and averaged for some ENR functions as shown in Table 1.

* Independent Board or Commission: The membership of these groups may be appointed by a Governor, Legislature, other elected and appointed officials, or combination thereof, with terms usually not coincident

with appointing official(s). Directors of agencies under these bodies serve at the pleasure of the groups themselves, not the Governor or appointing official(s). Examples include 13 historic preservation offices, 9 wildlife commissions, 7 State public land boards or commissions, 5 forestry organizations and 5 entities with air quality responsibilities.

* Elected Official other than Governor: Some ENR functions are under the jurisdiction of an additional official also elected by the citizenry. Almost half the states (22) have at least one of the selected ENR functions under an elected official other than the Governor, with most of them in the south and Texas having the most related elected officials (3). Agriculture is the most frequent ENR function outside gubernatorial jurisdiction, with 13 States having an elected agriculture official. Five states have an elected public lands management official, and a few states have other functions under these and other elected officials.

* Academic institution: State functions administratively located in academic institutions are usually considered "outside" state government and their budgets, while state funding is channeled through universities. Four ENR functions are in academic institutions, including 13 geological surveys, 7 state archaeologists, 4 forestry organizations and 6 of the 10 state biological surveys.

* Organizations Outside State Government: Two ENR functions can be exclusively governed by non governmental entities. Eleven historic preservation offices are under an independent historical society though it receives public funds, and 3 state Natural Heritage Programs are located in state offices of The Nature Conservancy.

Table 1 summarizes governing jurisdictions for seven ENR functions. These functions were chosen as responsibilities for them are usually clearly defined with one state entity, with the exception of public land management. Some other functions are difficult to summarize this way as multiple entities share responsibilities.

5.2 State ENR Institutional Classifications

State Executive branches have various institutional approaches and structures for ENR functions. Both the broad scope of ENR functions defined to prepare the charts, and a more limited set of "core" functions were used to determine categories and classify states accordingly. These "core" ENR functions include Natural Resources, Conservation, Environment, Geology, Forestry, Water, Wildlife, Oil/Gas/Mining, State Lands, Parks, Air Quality, and Waste Management, thus eliminating Agriculture, Biological Surveys, Coastal Management, Cultural Resources, Energy and Natural Heritage Programs. Accordingly, the following categories were determined and are proposed to classify state ENR institutionalization, with results detailed and summarized in Table 2.

It is generally thought that states are experiencing some (1) integration of related ENR functions and (2) establishment of comprehensive and omnibus ENR organizations. It could be suggested that each of the following categories represents a "stage" in the institutional integration of ENR functions in State Executive branches, with the first category representing the most, and the last indicating the least degree of integration. Some recent state organizational changes provide support for this idea and are discussed below after descriptions of the categories and trends impacting ENR institutionalization.

(1) Omnibus ENR Entity (10): These states have broad entities with environmental regulation roles, and also virtually all natural resources responsibilities, such as forestry, wildlife, and public land management. These states are all in the east and midwest. Massachusetts and West Virginia seem to be the states having single entities with the broadest ENR responsibilities, while no one state has all of the selected functions under one organization.

(2) Almost Omnibus ENR Entity (9): These states have one ENR organization that can be considered as "almost omnibus", and certainly as the primary or leading ENR entity in that state. These states differ from omnibus states in that one to three core ENR functions are not under these primary entities, most often including wildlife. Florida was classified into this category after its merger of dual lead agencies in 1994, however additional independent agencies exist for additional ENR functions including agriculture, wildlife, coastal management and energy.

(3) Dual Lead ENR Entities (6): Virtually only two agencies share the majority of ENR responsibilities in these states, providing essentially for most natural resources management responsibilities to be in one, with environmental protection roles in the other, modeled after the U.S. Environmental Protection Agency. Colorado, Hawaii, Maryland, Missouri, Ohio and Utah clearly fall into this smallest category.

(4) Two to Four Leading ENR Entities (8): These states have two to four primary agencies with ENR responsibilities, representing some consolidation of functions, but yet they can not be included in any of the above three classifications because roles are more dispersed. For example, though this category provides for two leading agencies, more ENR functions are located outside them than in the dual lead states. South Carolina moved into this category from the last one with its reorganization effective in 1994.

(5) Distributed: Five or More Leading ENR Entities (17): The remaining third of the states have five or more agencies sharing even "core" ENR responsibilities, with some states having up to 12 independent entities with ENR functions. With a large number of independent entities, Texas was classified in this category both before and after recent reorganization.

Various additional observations can be made from the charts beyond the scope of the project. For example, some, but limited, institutional results of "ecosystems management" initiatives are observed, most notably in Florida, Idaho, New Jersey, and Wisconsin. Regional locations, and less so, state populations, seem to impact the classification of states concerning ENR institutionalization.

Trends Influencing State ENR Institutionalization

Various conditions and trends influence the structure, level of integration and relative roles and responsibilities of state ENR institutions. Others' research and observations here are that some trends encourage integration, while others temper and discourage it.

*** Trends Encouraging Integration**

* State government leadership, initiative and innovation, along with greater roles and responsibilities devolved through federal legislation and programs, resulting in enhanced "institutional capacities",

* Continuing attempts to reorganize Executive branches, usually attempting to consolidate agencies into a cabinet form, reducing the number of independent entities and perhaps minimize the number of elected officials,

* "Ecosystems management" goals and initiatives, encouraging integration of ENR planning, management and functions,

* Fragmented ENR functions have been identified as causing weak and inappropriate environmental regulation, redundancy, confusion, overlap, and increased risk that important issues and considerations will be overlooked, and

* Information and technologies, particularly those displaying and analyzing conditions geographically which reveal redundancies, overlap and gaps and encourage attention and coordination.

*** Trends Discouraging Integration**

* Organizational change in state governments has been difficult to implement, time consuming and infrequent, with results often not reflecting proposals, and various independent entities continuing to exist even after reorganization,

* Requirements for legal changes in constitutional provisions, statutory provisions, and/or executive orders and logistical impediments to implement organizational change,

* Desire for maintenance of the "status quo" by many stakeholders to preserve autonomy and direct linkages to elected officials and funding sources,

* Positive effects of reorganizations have been limited and/or undetermined, and

* Alternative processes and mechanisms are being instituted to promote coordination such as interorganizational groups and networks, sometimes minimizing perceived needs for organizational changes.

Recent ENR Reorganization Examples

This project only considers and portrays current conditions, however two states experienced integrating, but differing ENR organizational changes while the project was underway. These examples seem to support the relevance of the differing, competing and reinforcing trends discussed above, and also the proposed institutional categories and the notion that they represent stages to ENR integration.

*** South Carolina**

South Carolina has decades of studying and promoting reorganization due to many independent entities with overlapping roles, however gaining agreement for specific changes was difficult. The importance of the issue grew in time, but rose sharply in 1990 after investigation of the legislature by the Federal Bureau of Investigation and the Governor made reorganization the lead issue of his reelection campaign.

Following extensive efforts and negotiation, the legislature approved the Restructuring Act of 1993, and also made limited changes regarding ENR functions in 1994. Most significantly impacting ENR, a Department of Natural Resources (DNR) was newly formed, comprised of most components of the Wildlife and Marine Resources Department, the Land Resources Commission, the Water Resources Commission, the Migratory Waterfowl Committee and the Geological Mapping section of the Budget and Control Board. A new Natural Resources Board was established to direct DNR, providing the Governor with only indirect jurisdiction over the new agency. Regulatory functions of these agencies were transferred to the existing Health and Environmental Control Department.

After reorganization, South Carolina also has an independently elected Agriculture Commissioner; Forestry Commission; Parks, Recreation and Tourism Department; an Energy Office in the Budget and Control Board, and cultural resources responsibilities in additional entities. Accordingly, South Carolina was classified as moving from a fully distributed structure (category 5) to a less distributed one (category 4). (For more information, see Modernizing South Carolina State Government for the Twenty-First Century.)

*** Florida**

Representing more of an "advanced" reorganization, Florida merged its existing Department of Natural Resources and Department of Environmental Regulation into the Department of Environmental Protection (DEP), effective in July, 1994. Florida is classified as having an "almost omnibus ENR agency" as independent agencies also exist for ENR functions including agriculture, wildlife, coastal management and energy.

The law authorizing the new DEP set specific policies reflected some of the above trends. For example these policies include "consistent state policy for the protection and management of the environment and natural resources" and "protect the functions of entire ecological systems through enhanced coordination of public land acquisition, regulatory, and planning programs." (Report to the Legislature on the Creation of the Department of Environmental Protection, p. 3) The merger provided for DEP to have three major components, programs, regulation and ecosystems, thus reflecting "ecosystems management" in ENR institutionalization.

5.3 Institutionalization of Selected ENR Functions

The following review of selected ENR functions provides some insight into their individual roles, jurisdictions, structures and relationships, particularly in respect to their relationships with federal organizations, and in light of the ENR institutionalization conditions and integration trends discussed above.

Additional research could be conducted in this area, particularly considering individual ENR functions and their jurisdiction, hierarchical level, relationships and relative "strength" through and following reorganizations. For example, some functions seem more resistant to organizational changes, thus retaining autonomous, and often high-level status in or outside omnibus or primary agencies. Reasons could be either (1) the strength of political support for their autonomy, or (2) Federal designations or requirements of States, (3) dedicated funding sources, or some combination thereof. For example, wildlife, coastal and energy entities seem more autonomous and high-level than other functions. The Coastal Zone Management Act of 1972 places responsibility for planning the development and protection of coastal resources with the

States, and meant that States established unique entities. Similarly, Federal deregulation and decentralization of energy policy necessitated State energy entities. Wildlife entities have unique and dedicated funding resources, as discussed below. Incidences, impacts and outcomes due to these conditions would provide useful insights to state and federal officials alike. An initial review of institutional conditions for some ENR functions is provided below.

5.3.1 Water Resources

Water resources is perhaps the most fragmented, overlapping and confusing ENR function today, with an array of institutions established at all government levels to implement similarly desegregated directives. Water is also one of the best examples of a natural resource used and managed for various purposes such as drinking, power and transportation (though boating was not included in the project scope), while also being the object of environmental protection and regulation according to various directives and programs. Water governance challenges are growing, especially as "ecosystems management" implementation requires agreement among various entities, particularly regarding watersheds.

Water public policy is directed and implemented by often conflicting federal, state and local legislation and regulations, as each level of government has autonomous and varying legal authority based on the area of water policy. For example, Federal legislation directs surface water quality through the Clean Water Act, and drinking water quality through the Safe Drinking Water Act, while states increasingly have flexible implementation authority and can adopt stronger requirements. State supremacy is recognized in water quantity, crucially important in the 17 western states where "water rights" can be more valuable than land itself. Here, largely autonomous "state engineers" direct complex systems of sometimes unquantified and differing water rights, uses and allocations that impact all other water policy. Legal conditions are further complicated by federal reserve water rights and native American water claims, often resulting in costly litigation to resolve disputes. Groundwater is another area of State authority and leadership, with many states adopting groundwater legislation and programs for its protection. Conjunctive approaches have been called for by many officials. Some states have initiated multiagency water groups, mechanisms and approaches to facilitate coordinated direction, programs and data. (U.S. Advisory Commission on Intergovernmental Relations, 1991) Water responsibilities can be diagrammed as follows:

	Ground	Surface
Quality	State	Federal
Quantity	State	State

Tabulation, comparison and analysis of water institutions and structures is more difficult than other ENR functions, and necessitates more in depth review than possible in this project. For example, at the Federal level, a 1990 inventory found 18 federal agencies in 7 departments, 7 independent agencies, and 25 separate water programs with 70 separate appropriations accounts. (Light and Wodraska, p. 479) State water responsibility areas are most frequently divided by (1) quality and quantity, (2) policy, planning and management, and (3) surface and ground. These responsibilities constitute "primary water functions" as used below. Additional state entities may be responsible for other "water" areas, such as for wetlands, administration of local drinking and wastewater programs, and state soil and water entities which may be

part of a ENR agency or an independent committee. Review of the charts classified states according to water institutionalization as follows.

Primary Water Functions (PWF) Responsibilities	Number of States
"Well-integrated" in one ENR agency	8
In one agency, but among two or more divisions	9
Shared by two different agencies	22
Shared by three or more agencies	11

5.3.2 Biological Resources

Many Federal and State agencies also have roles in understanding and managing biological resources in the United States. The National Biological Survey in the U.S. Department of Interior adds a new actor and resources, but could increase existing confusion. Important state actors discussed below include fish, wildlife and/or game agencies; state biological surveys, and natural heritage programs.

While some biological resource roles are unclear, wildlife management responsibilities and activities are defined, decentralized and relatively well-funded compared to other ENR functions. According to legislative direction since the early 1900s, States have primary responsibility for wildlife populations within their jurisdictions, including on Federal land. Exceptions include migratory birds and threatened and endangered species which are under the control of the Fish and Wildlife Service (FWS), and wildlife habitat on Federal lands, which are the responsibility of those agencies.

* Fish, Wildlife and/or Game Agencies

Each State has a "wildlife" agency, while three states have these roles shared by two or more entities. State statutory direction varies by state, with responsibility ranging from only game fish and game animals to increasingly include the management and protection of all resident wildlife and fish. Roles include offering information and assistance to private land owners; providing educational programs on hunter safety, recreation and outdoor ethics; conducting wildlife research and inventory efforts regarding animal species and their habitat, and managing lands and facilities. These agencies are some of the "best" funded of any ENR function; through Federal and State legislation providing dedicated license fees, stamps and taxes on equipment, boats, fuel and supplies.

Wildlife agencies are also among the most autonomous of State ENR functions, conjectured to be due to both historical and financial reasons. As shown in Table 1, of the 47 states with a single wildlife entity, nine are directed by an independent board or commission. Of the 38 agencies remaining, 12 report directly to the Governor. The other 26, or 52% of all states have their wildlife agency as a part of another ENR entity. The average number of steps from the Governor to the wildlife agency in the 38 states where it is under the Governor's control is 1.7.

* State Biological Surveys

Ten states have a designated biological survey, each with some biological resources inventory activities, sometimes in consortium with other entities. Six biological surveys are in universities, including Connecticut, Kansas, Ohio, Oklahoma, Pennsylvania and Rhode Island. The survey in Illinois is located in the Department of Energy and Natural Resources, and New York and North Carolina's surveys are in state museums. Hawaii's survey is located in a private, non profit museum.

* Natural Heritage Data Centers

The Natural Heritage Program (NHP), initiated by the Nature Conservancy (TNC) in 1974, is considered a leading source of nationwide biological data, particularly sensitive plant species. Data transcends ownership and political boundaries, however "states" are considered the appropriate administrative and data gathering and management unit. Each state and 35 other offices in North America has a NHP center managed independently and with differing financial arrangements, generally including a combination of state government and TNC funding. Review of the charts determined that of the 50 state centers, 42 are in the Executive branch of state government. Three NHP centers are located in state TNC offices and four are in universities. Of the 42 in state government, 25 are in ENR organizations, 12 are specifically within wildlife entities, and five are in parks and recreation, history, economic development or library entities.

5.3.3 State Geological Survey

Each State government has a designated "State Geologist" or "State Geological Survey", many with independent roles determined by their individual states, and also providing a contact point for the Geological Survey, located in the U.S. Department of Interior.

As shown in tables 1 and 3, 35 or 72% of the State Geologists are under the Governor's jurisdiction, with five personally reporting to this official. The average number of steps from the Governor to the State Geologist is 2.22. The Washington Geologist is uniquely under the elected Public Lands Commissioner and Arkansas has the nation's only Geological Commission. Of all ENR functions, geology is most often in an academic institution, with 13 or 26% so located. Some additional State Geologists are physically located in universities, but have a direct reporting relationship to the Governor, as in Wyoming.

5.3.4 State Forestry Organization

Similar to the state geologists, each State has had a designated "State Forester" or "State Forestry Organization," providing a contact point and delivery mechanism for the Forest Service, located in the U.S. Department of Agriculture. The size and roles of these entities varies greatly, for example with the number of staff ranging from under five to over 200. Deriving both Federal and State authority and resources, State forestry responsibilities include (1) management of state-owned forested lands, (2) delivery of educational services and assistance to private land owners, and (3) regulation over forest practices on private lands, particularly strong in the 13 States with legislated, comprehensive regulatory programs. Recent Federal direction and funding is expanding state forestry roles to include rural, economic and community development programs, however related State and other Federal programs are traditionally administered by dedicated state economic or community development entities.

As detailed in Tables 1 and 4, 38 or 76% of the State forestry entities are under the Governor's direct jurisdiction, with two personally reporting to this official. The average number of steps from the Governor to the State Forestry entity is 2.12. Louisiana is the only state with a directly-elected forestry official, entitled the Agriculture and Forestry Commissioner. Washington's forestry is located under the elected Public Lands Commissioner, and Florida's Forestry division is under the elected Agriculture Commissioner. Five states have a forestry commission indirectly reporting to the Governor, and four state forestry organizations are administratively located in universities. Of the forestry entities under the Governor, 26 are located with other natural resources management functions, six are under agriculture similar to the Federal government, and five are under public lands management entities.

5.3.5 State Lands Management

Together, State governments own and manage approximately 7% of the land mass of the United States, while Federal agencies collectively manage over 29% of the nation. State lands often have significant forest and mineral resources. For example, more forested land in the Great Lakes area is owned by State governments than Federal agencies. Many State lands are managed to generate revenue for trust beneficiaries, primarily including schools, and also hospitals, higher education and other public functions. States also manage and are acquiring new lands to protect biological diversity, habitat and aquifers. In addition, States own land used for state parks and various ENR, transportation and utility facilities. There are increasing economic and ecosystems management incentives for Federal land management agencies to consider State land management agencies as partners for collaborate public land planning, management, operations, exchanges and acquisition. However, these opportunities seem underdeveloped at present.

Review of the charts, as detailed in Table 1, identified leading State land management entities in 37 or 74% of the states, while these responsibilities are shared among two or more entities in 13 states. Of these 37 lead entities, 24 or 48% of all states have these responsibilities under the Governor's direct jurisdiction, with three personally reporting to this official. The average number of steps from the Governor to the land management entity in the 24 states where it is under the Governor's control is 1.8. Five states, including Arkansas, New Mexico, South Dakota, Texas and Washington, have an elected State land management official. Seven states have a board or commission indirectly reporting to the Governor. Mississippi's Public Lands Division is located under the elected Secretary of State. Each state also has an entity responsible for management of state lands, with most located in an omnibus or primary ENR agency, and a few located with cultural resources functions.

5.3.6 Environmental Protection and Regulation

State governments are important regulators of the environment and natural resources utilization within their states, regardless of ownership. States are increasingly responsible for enforcing environmental laws and regulations concerning air, water and land utilization as administered through the U.S. Environmental Protection Agency (EPA). Exercising their own authority, some States are adopting their own environmental protection statutes, in some cases stronger than or in addition to Federal direction, such as for groundwater protection and solid waste management. States also regulate much natural resources utilization, including oil, gas, and minerals extraction and forestry through both state and federal direction. State laws, regulations and approaches and enforcement of federal laws differ significantly among the

States. This ENR function and individual federal acts and programs are perhaps the most frequent area of research conducted by both academicians and professional associations.

Environmental protection institutions and structures among the States vary perhaps even greater than their legal direction because States implement Federal programs along with State ENR programs. EPA offices almost exclusively maintain relations with their state counterparts for individual laws and programs, similar to the Geological Survey with State Geologists and the Forest Service with State Foresters. However, as awareness of potential functional fragmentation, overlap and conflict seems more obvious at State levels, some States have merged various ENR functions into one organization as discussed above. Generally, these agencies increasingly include the counterparts to the Federal EPA, Department of Interior, and the Forest Service and Natural Resources Conservation Service (formerly the Soil Conservation Service). Some State ENR entities, some independent of and others superior to EPA counterparts, have complained to EPA about their lack of voice and partnership opportunities with EPA, but with limited response.

The charts reveal various ways to consider all State environmental protection entities and institutional relationships. Water quality institutions were considered with other water entities as described above in 5.3.1, though water quality could be analyzed individually. Focus here was on air and waste, with the purpose of understanding how isolated these functions are from others and their level in State government hierarchies. Almost opposite results were found for these functions.

* Air

Entities responsible for "air" seem clearly defined. As shown in Table 1, 47 States have a single "air" entity, and 42 of them are under the direct jurisdiction of the Governor. Two States, Illinois and North Dakota, have two entities in separate agencies with air responsibilities, while Tennessee separates air regulation from assistance, but in the same omnibus ENR agency. Five states have air entities outside the Governor's direct scope because they have ENR boards or commissions above them, while California uniquely has a Air Resources Board.

* Waste

In contrast to air, waste responsibilities seem very fragmented in a majority of States, again probably largely due to mix of State and Federal laws and programs. Among all ENR functions, waste is probably second to water in terms of these institutional problems, as different entities seem responsible for solid, hazardous, low-level radioactive and other waste, with recycling offices also emerging. Some states have independent boards, commissions or authorities for some, but usually not all waste. These groups are hard to identify, with probably not all included in the charts. Often with different authority than agencies, they can operate very independently of waste entities inside other ENR agencies. Institutional fragmentation, conflict and redundancy problems are expected to grow as many waste sites and approaches remain undecided and controversial, and Federal direction supports greater State responsibility.

5.3.7 Cultural Resources

State governments have organized cultural resources in many different ways, and some of these functions are not directly associated with ENR, such as recreation and museums. However, historic preservation and

archeology can be included as ENR functions because historic and archaeological resources are increasingly considered like natural resources in environmental reviews before changes to land use or development are permitted. Defined entities have these specific roles in virtually all states, thus permitting institutional evaluation.

* Historic Preservation

The National Historic Preservation Act provides decentralized Federal and State roles, including responsibilities and authorizes funding for State Historic Preservation Offices (SHPOs) and the National Park Service in the Department of Interior. The Act directs SHPOs to maintain a comprehensive inventory and Statewide comprehensive plan regarding all cultural resources.

As revealed in Table 1, of the 50 SHPOs, 23 or 46% are under the Governor's direct jurisdiction, while four are under other elected officials, including Florida and Massachusetts under Secretaries of State, Louisiana under the Lt. Governor, and Michigan under the Legislature. SHPOs are located under a variety of state functions, including 10 in cultural, arts, education and recreation; 5 in ENR; 4 in community or economic development, 3 in history, and one under a non-elected state department. Of the remaining 23 SHPOs, 12 are directed by a board or commission, while 11 are under a historical society.

* State Archaeologists

"State archaeologists" are considerably less "official" than SHPOs as they do not have Federal designation or direct funding, however they were identified in 49 states, with Maine having these responsibilities shared by two entities. Twenty four state archaeologists are under the Governor's direct jurisdiction, with 15 under a board, commission or society, 7 in universities and 3 under other elected officials, including Florida and Michigan under Secretaries of State and Louisiana under the Lt. Governor. The 24 State Archaeologists under the Governor are located under various functions, including 10 in cultural, arts, education and recreation; 5 in ENR; 5 in community or economic development, 2 in history, and one under a non-elected state department. Review of the charts found that 38 state archaeologists are in the same organization as SHPOs in their state.

6. Conclusion

The nation is governed by a combination of federal, state and local agencies, each often acting on their own according to independent and fragmented directives, and differing organizations, structures and roles. Environmental and natural resources (ENR) institutionalization conditions are displayed in the 50 state organizational charts included in this report. This project provides unique, ground breaking work describing and comparing differing institutional conditions in the states by means of these comprehensive and consistently-designed charts. The reader can use and analyze them in many individual and different ways with an assurance of reasonable accuracy based on input of officials in the 50 states, and clear definition of their scope, methodology and caveats as described above.

This report also includes some summarization and categorization of state ENR institutional conditions to illuminate and encourage readers to consider differences among the states. Findings focus on (1) governing, and particularly gubernatorial jurisdiction, (2) ENR organizational classifications, particularly the incidence and scope of omnibus ENR organizations, and (3) review of selected ENR functions to

understand their administrative conditions as a result of the above and their unique scope and issues. These findings are based on both the charts and relevant research of the principal investigator and others. Evaluation and judgement concerning conditions is purposefully limited as the findings portray current conditions, and do not investigate past conditions, causation or impact.

State ENR institutionalization is important for several reasons. It can impact direction, resource allocations, program thrust and outputs, interrelationships with other ENR entities, and environmental outcomes, sometimes regardless of related efforts of others. State ENR institutionalization has been criticized for being fragmented, redundant, overlapping, confusing and sometimes conflicting. Efforts and examples of state ENR restructuring to coordinate and integrate ENR functions seem to be increasing, however can be impeded by various trends, and particularly if functions reside under differing jurisdictions or in different organizations.

6.1 Future Work

While state reorganizations seem to favor ENR integration, some results seem less than originally desired or proposed. Some measure and analysis of proposed and implemented changes over time, as well as trends, mitigating factors and impacts would provide useful insight and benefits for States. Differing conditions and approaches warrant analysis, particularly as some states endeavor to reduce the number of elected officials and increase coordination and integration of ENR functions. Conditions concerning jurisdiction and reporting relationships are difficult to quantify and evaluate, but logic would predict their having impact. For example, analysis of the influence of elected as compared to appointed Agriculture officials on groundwater and other conditions could provide insight relevant to program outputs and environmental outcomes. Future state ENR work should also include inventory and analysis of state interagency ENR groups and lead state entities for state ENR policy.

6.2 Federal Implications

This project has many implications for the federal government, and provides information in a way to help meet federal needs. Firstly, it seems that federal agencies could benefit by reminders that "states" are uniquely their "partners" in governing the nation, complete with state authorities and jurisdictions in addition to and sometimes beyond the federal government. In many cases, federal agencies seem to erroneously include states with other members of the "non federal community," sometimes with negative consequences to these federal agencies such as litigation.

Secondly, federal agencies and others find it difficult to work with states because there are "so many of them," and important institutions, actors and roles differ and change. Inadequate information has been available about state institutional conditions, organizations and structures, often resulted in confusion and misconceptions about the roles and responsibilities of various ENR entities. Sometimes it seems federal agencies are not aware of or ignore related state agencies, and do not communicate or work with the most or all the appropriate State entity(s) for a designated purpose.

Frequently, federal agencies consider "States" to be the State entity with common disciplines, and similar, traditional roles and responsibilities. Federal agencies may work with these state counterparts to the exclusion of other related entities. Examples can include the Forest Service and State Foresters, the

Geological Survey and State Geologists, and the U.S. Environmental Protection Agency with its state counterparts. Some of these state offices can be isolated from or at low levels within state organizations. Accordingly, state counterparts may not officially or realistically represent their states to federal agencies, or be aware or manage some related state policies or programs.

Negative consequences of inadequate federal-state communications and relations are being identified, including reinforced redundancy, overlap and fragmentation of ENR efforts and programs, and often ineffective use of resources. Often these results and unnecessary confusion and conflict are particularly obvious at the "field level" and to the public, resulting in reduced public image of related agencies. Some specific examples and concerns are discussed below.

* Federal programs may not channel funds to the most appropriate state government entities. Accordingly, federal program effectiveness is limited, and opportunities for coordination of Federal and state programs is constrained. For example, some of the Forest Service's rural development programs and funds might be better channeled through state community or economic development or affairs entities than State Forestry Organizations. With this in mind, Montana's State Forester "gave" these programs to the state economic development organization so it could coordinate Federal programs with related state programs.

* Federal agencies can be unaware of related state initiatives and programs, some of which could aid in federal missions. For example, the Environmental Protection Agency's assumption that it only needs to work with its counterparts for environmental regulations has resulted in EPA not working with some state agencies that have been given responsibilities to develop comprehensive ENR plans and policies in their states. Some state agencies have data resources that are virtually unknown or ignored by federal agencies because they are developed by state agencies other than their traditional counterparts.

* Trends toward integration of state ENR functions means relevant federal counterparts may not exist for omnibus state ENR entities. Many states are establishing omnibus and integrating entities with broad ENR responsibilities equivalent to a combination of the Department of Interior, Environmental Protection Agency and parts of the Department of Agriculture. No federal counterparts exist for states to coordinate their efforts with at this level. Some omnibus state ENR entities have complained that they do not seem to have a voice or communication with the Federal government.

6.3 Federal Suggestions

This project provided the opportunity to generate some general and specific suggestions for the federal government. In general, the charts reveal differing conditions among the states, thus encouraging federal agencies to develop flexible and adaptive approaches in working with states. Federal agencies can use each chart to analyze existing state relations, and investigate whether additional relationships may be appropriate. Specific efforts to develop relationships with others in addition to state counterparts could provide numerous benefits. For example, many existing and new federal initiatives such as "ecosystems management" can benefit by communicating and working with omnibus and other state ENR entities to coordinate related programs and data management.

Secondly, states sometimes have difficulty working with the federal government because federal agencies do not seem to coordinate efforts at the field level. Federal ENR agencies could establish mechanisms to be more aware of and better coordinate federal activities.

Further, federal policies and programs could provide leadership to encourage ENR integration and connectivity within individual states, as well as commonality to minimize confusion among states. Incentives could be provided for integrated and collaborative approaches to ENR problems and needs, as well as corresponding institutions and mechanisms to accomplish them. Such efforts could help coordinate federal and state policies, programs, resources and data development to potentially increase effectiveness while minimizing fragmentation, redundancy, overlap and waste.

Some needs were observed for enhanced relationships between federal and state entities having similar functional responsibilities. For example, federal and state agencies could establish and empower state-level water coordinating groups to address often fragmented surface, ground, quantity and quality programs, while assisting common "ecosystems" efforts. Federal land management agencies could realize many benefits by strengthening relationships with state land management agencies. The National Biological Survey might encourage and provide incentives for collaboration among state agencies in addition to working with state biological surveys. Numerous opportunities exist to improve federal-state ENR coordination if federal agencies communicate and work with all, rather than some appropriate state entities.

Author's Note and Acknowledgements

This project was conceived as a needed "window" to see into State governments, based on the principal investigator's work about states, and for federal agencies. For example, research conducted for the State Geographic Information Activities Compendium and other projects revealed a "knowledge gap" concerning identification of and relationships between state ENR organizations. Work for federal agencies revealed little federal understanding and consideration of state ENR entities other than those with responsibilities similar to their own. Accordingly, this project was conceptualized, designed and undertaken with a similar charting project to understand state entities with geographic information roles and activities (Warnecke, 1994).

A proposal to prepare these charts was submitted to the U.S. Geological Survey as it was envisioned the results could help their coordination efforts. Mitchell Reynolds of the Geologic Division agreed to provide funding, and is hereby gratefully acknowledged and sincerely thanked for his assistance. This project would not have been possible without his personal help. Nicholas Colas is especially thanked for his meticulous work and patience, without which the charts would not exist in their clear and legible form. Representatives of the 50 States are thanked for providing information and reviewing charts, but also for their enduring support and encouragement.

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Table 1: Governing Jurisdictions for Selected State ENR Functions

		GS	F	PL	W	Ag	Air	HP
Under Governor's Jurisdiction	35	38	24	38	36	42	23	
Direct Reporting (1 step)	5	2	3	12	33	0	1	
Average Steps to Governor	2.22	2.12	1.80	1.70	1.08	2.54	2.46	
Board, Commission or Other Group	1	5	7	9	0	5	23*	
Other Elected Official	0	1	5	0	13	0	0	
Under Other Official	1	2	1	0	0	0	4	
Academic Institution	13	4	0	0	0	0	0	
Shared/Unclear Responsibilities	0	0	13	3	1	3	0	

key
GS = Geological Survey
F = Forestry Organization
PL = Public Lands Management Entity
W = Wildlife, Game and/or Fish Entity
Ag = Agriculture Entity
HP = Historic Preservation Office

* 12 historic preservation offices are directed by a board or commission, while 11 are under a historical society.

Table 2: Classification of State Environmental/Natural Resources Organizations

	# Indep. # Entities*	# Core Entities+	Organizational Type
Alabama	9,1	7	e - distributed
Alaska	6	3	d - three primary agencies
Arizona	12,1	9	e - distributed
Arkansas	12,1	7	e - distributed
California	5	4	d - four primary agencies
Colorado	5	3	c - dual agency lead
Connecticut	6	1	a - omnibus agency
Delaware	5	2	a - omnibus agency
Florida	5,1	3	b - almost omnibus agency
Georgia	4,1	2	a - omnibus agency
Hawaii	8	2	c - dual agency lead
Idaho	7	6	e - distributed
Illinois	7	5	e - distributed
Indiana	5,1	4	d - two primary agencies, plus others
Iowa	3,1	2	a - omnibus agency
Kansas	9	6	e - distributed
Kentucky	5,1	4	b - almost omnibus agency
Louisiana	6,1	6	d - two primary agencies, plus others
Maine	12	6	e - distributed
Maryland	5	2	c - dual agency lead
Massachusetts	3	1	a - omnibus agency
Michigan	4,2	2	a - omnibus agency
Minnesota	8	5	d - two primary agencies, plus others
Mississippi	8,2	7	e - distributed
Missouri	3	2	c - dual agency lead
Montana	10	7	e - distributed
Nebraska	10,1	8	e - distributed
Nevada	4,1	4	b - almost omnibus agency
New Hampshire	6	3	d - three primary agencies
New Jersey	3	1	a - omnibus agency
New Mexico	8,1	6	e - distributed
New York	6	3	b - almost omnibus
North Carolina	4,2	3	b - almost omnibus
North Dakota	10,2	9	e - distributed
Ohio	5	2	c - dual agency lead

* Number following comma is functions under elected officials other than Governor

+ Includes Natural Resources, Conservation, Environment, Geology, Forestry, Water, Wildlife, Oil/Gas/Mining, State Lands, Parks, Air Quality, Waste Management

Table 2: Classification of State Environmental/Natural Resources Organizations

Oklahoma	10,1	9	e - distributed
Oregon	13	10	e - distributed
Pennsylvania	6	3	b - almost omnibus agency
Rhode Island	6	3	b - almost omnibus agency
South Carolina	7,2	4	d - four primary agencies
South Dakota	5,1	4	b - almost omnibus agency
Tennessee	4	4	b - almost omnibus agency
Texas	8,3	7	e - distributed
Utah	4	2	c - dual agency lead
Vermont	4	1	a - omnibus agency
Virginia	10	7	e - distributed
Washington	10,1	6	d - four primary agencies
West Virginia	2,1	1	a - omnibus agency
Wisconsin	5	2	a - omnibus agency
Wyoming	10	8	e - distributed
Average	7.2	4.3	

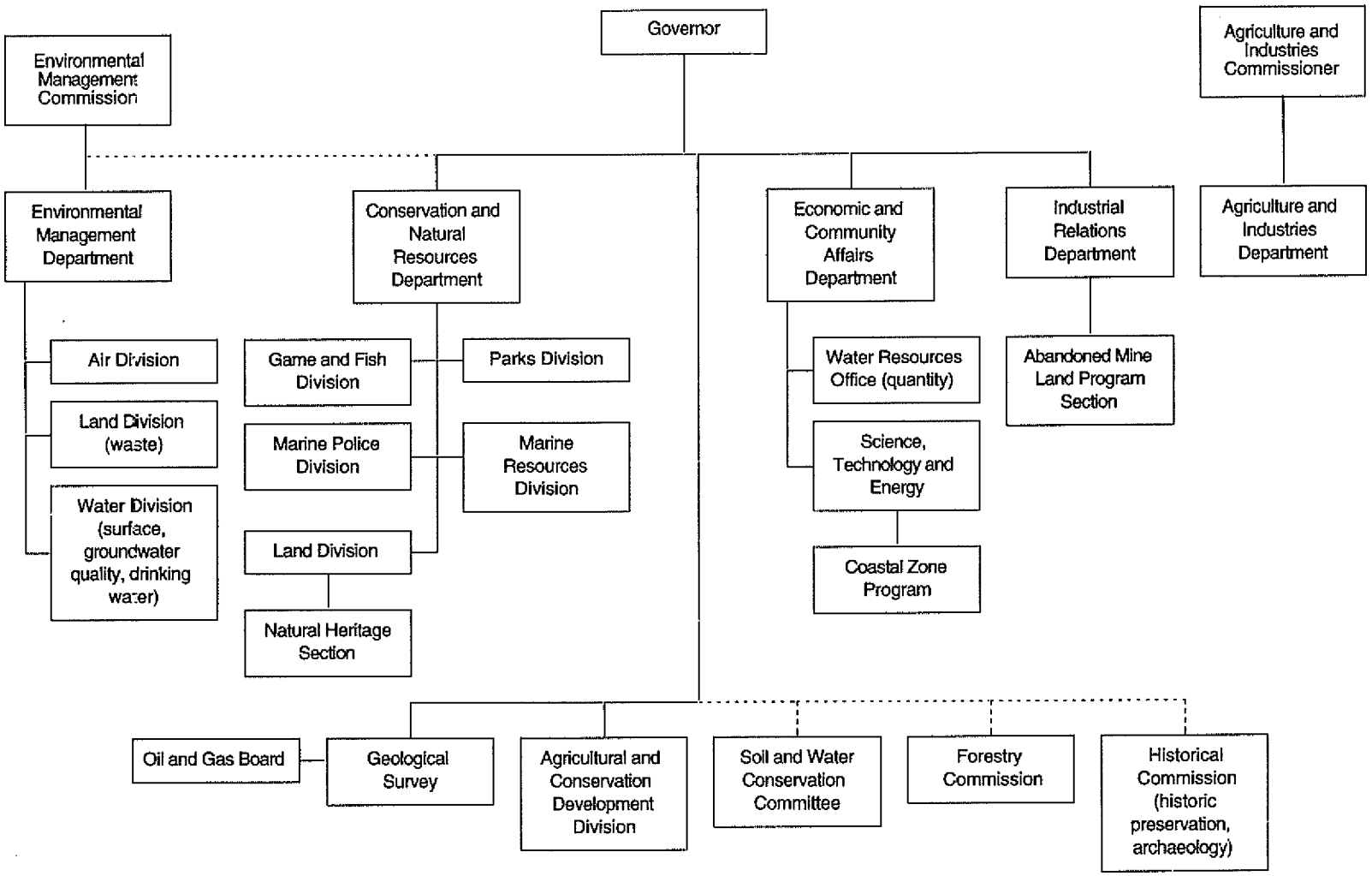
* Number following comma is functions under elected officials other than Governor

+ Includes Natural Resources, Conservation, Environment, Geology, Forestry, Water, Wildlife, Oil/Gas/Mining, State Lands, Parks, Air Quality, Waste Management

Summary

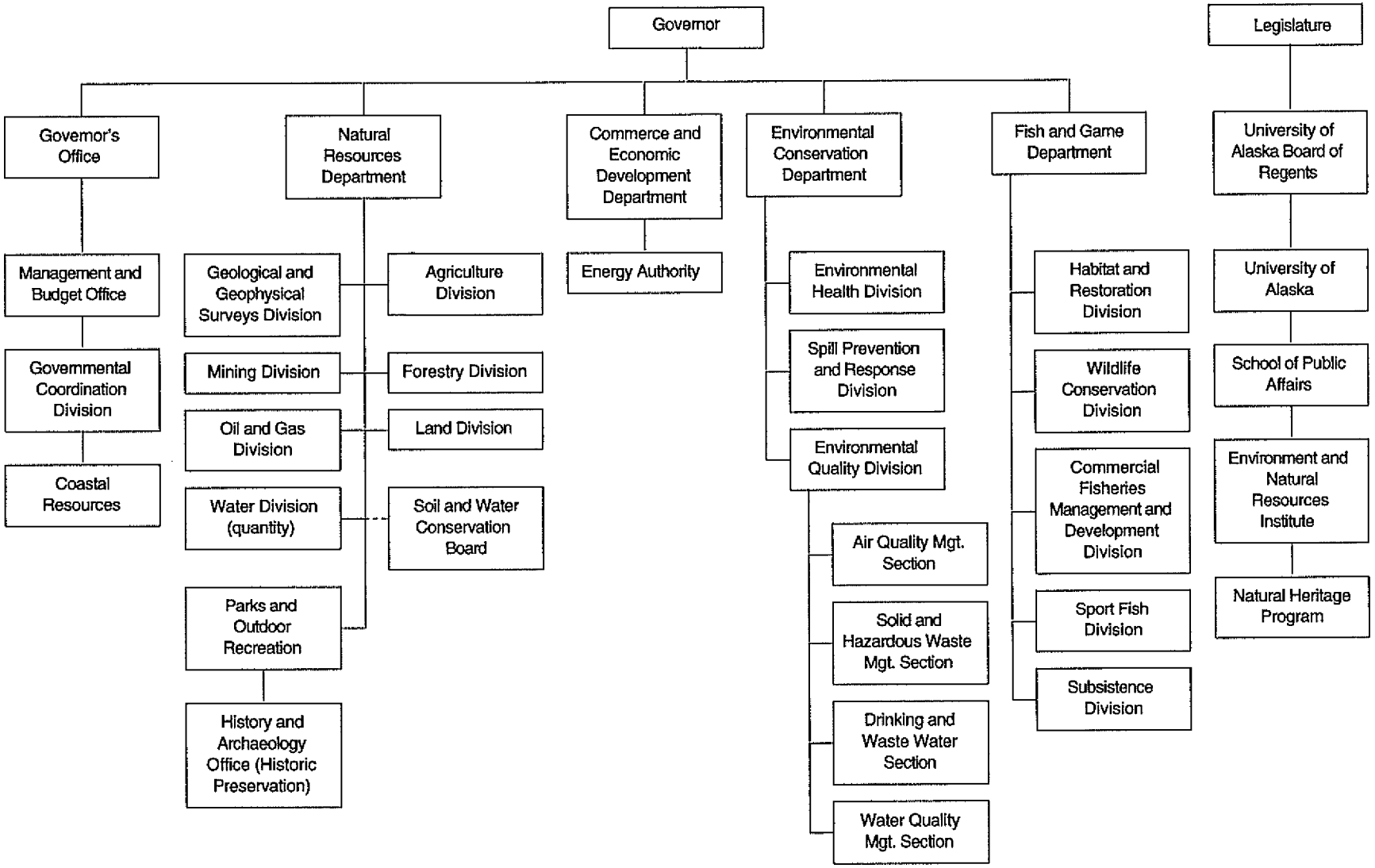
Classification of State ENR Organizations	Number	Percent of States
Omnibus ENR Entity	10	20%
Almost Omnibus ENR Entity	9	18%
Dual Lead ENR Entities Natural Resources Department Mini - Environmental Protection Agency	6	12%
Two to Four Leading ENR Entities	8	16%
Five or More Leading ENR Entities	17	34%

Alabama - E/NR



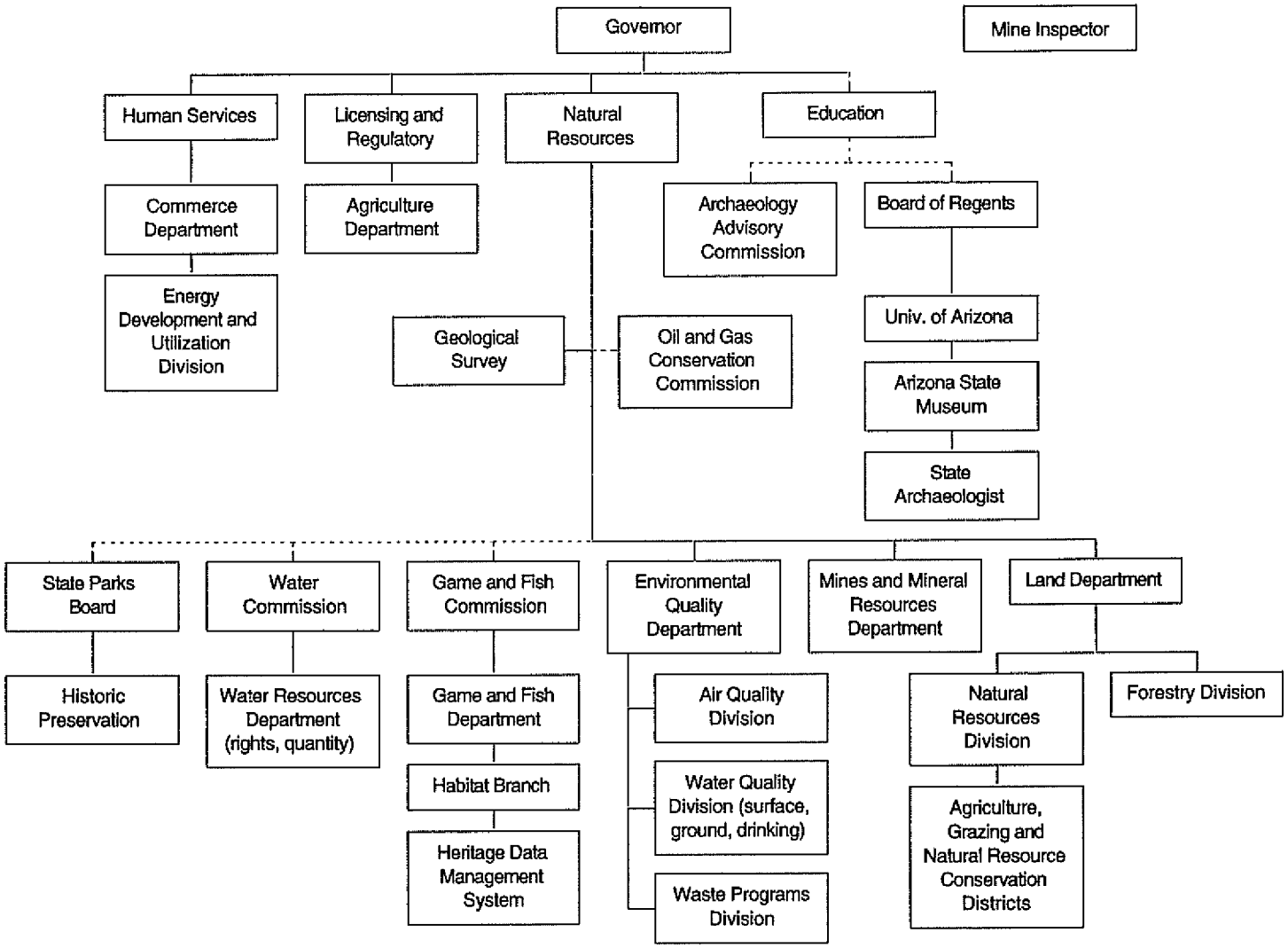
Warnecke, 1994

Alaska - E/NR



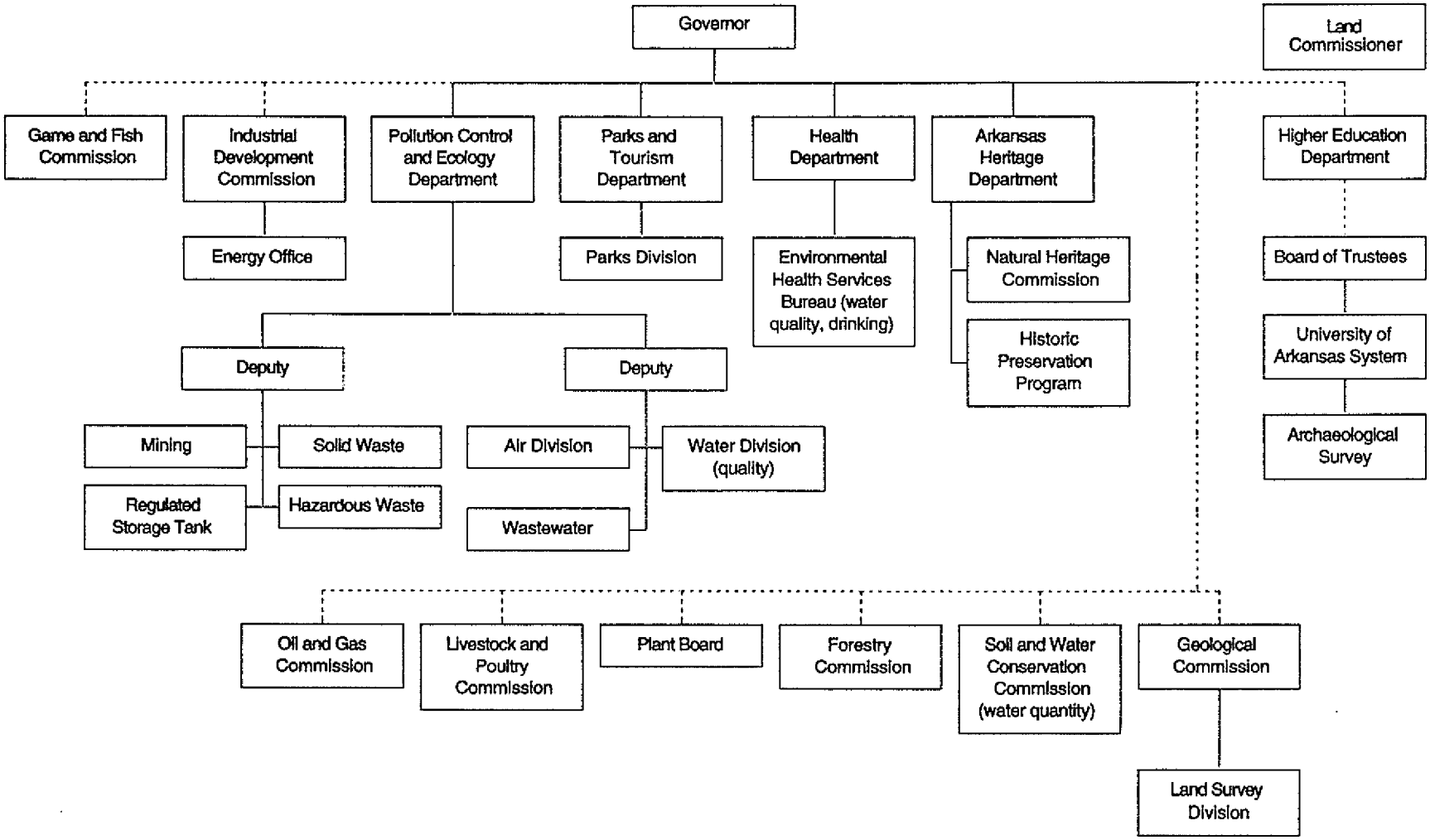
Warnecke, 1994

Arizona - E/NR



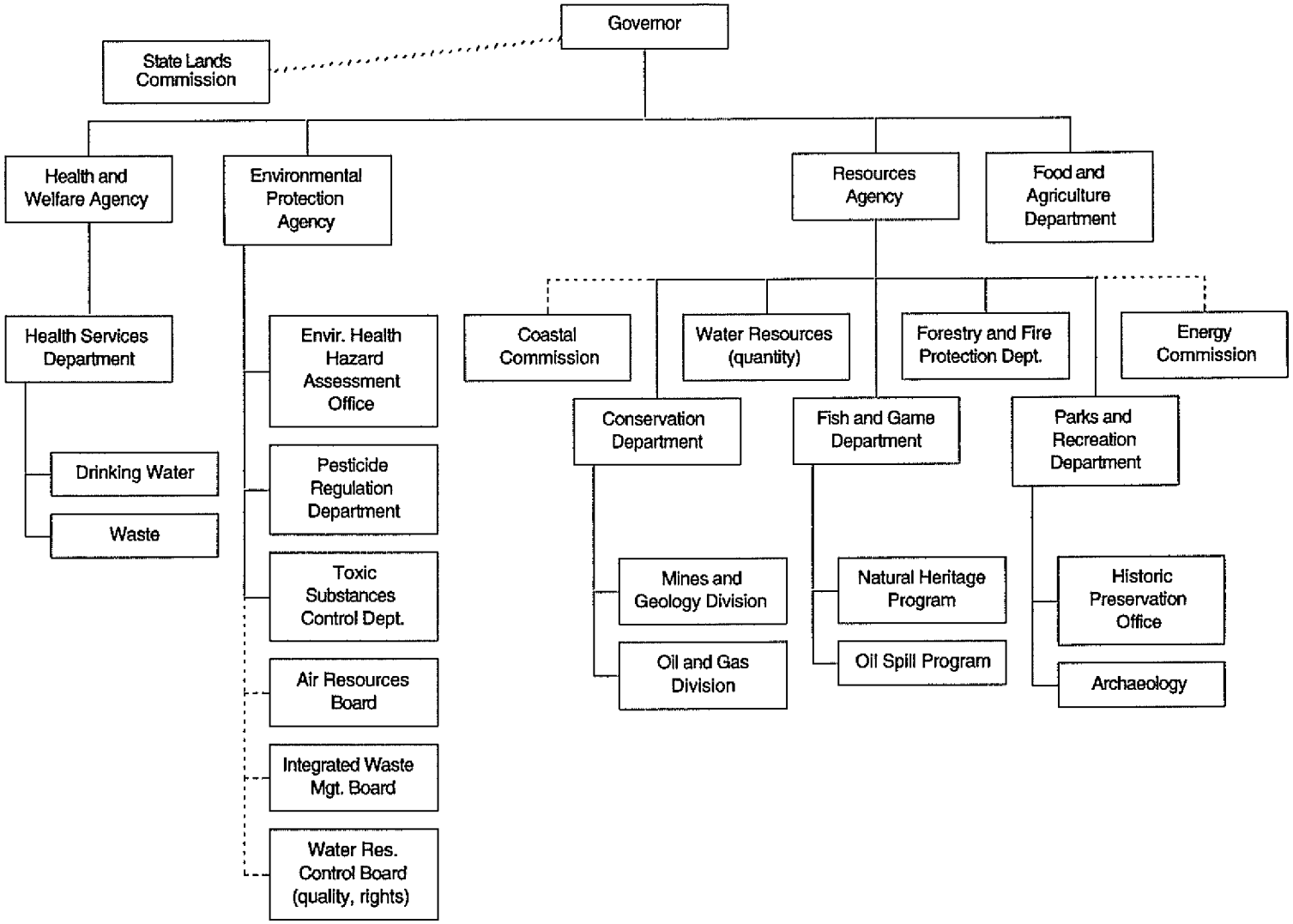
Warnecke, 1994

Arkansas - E/NR



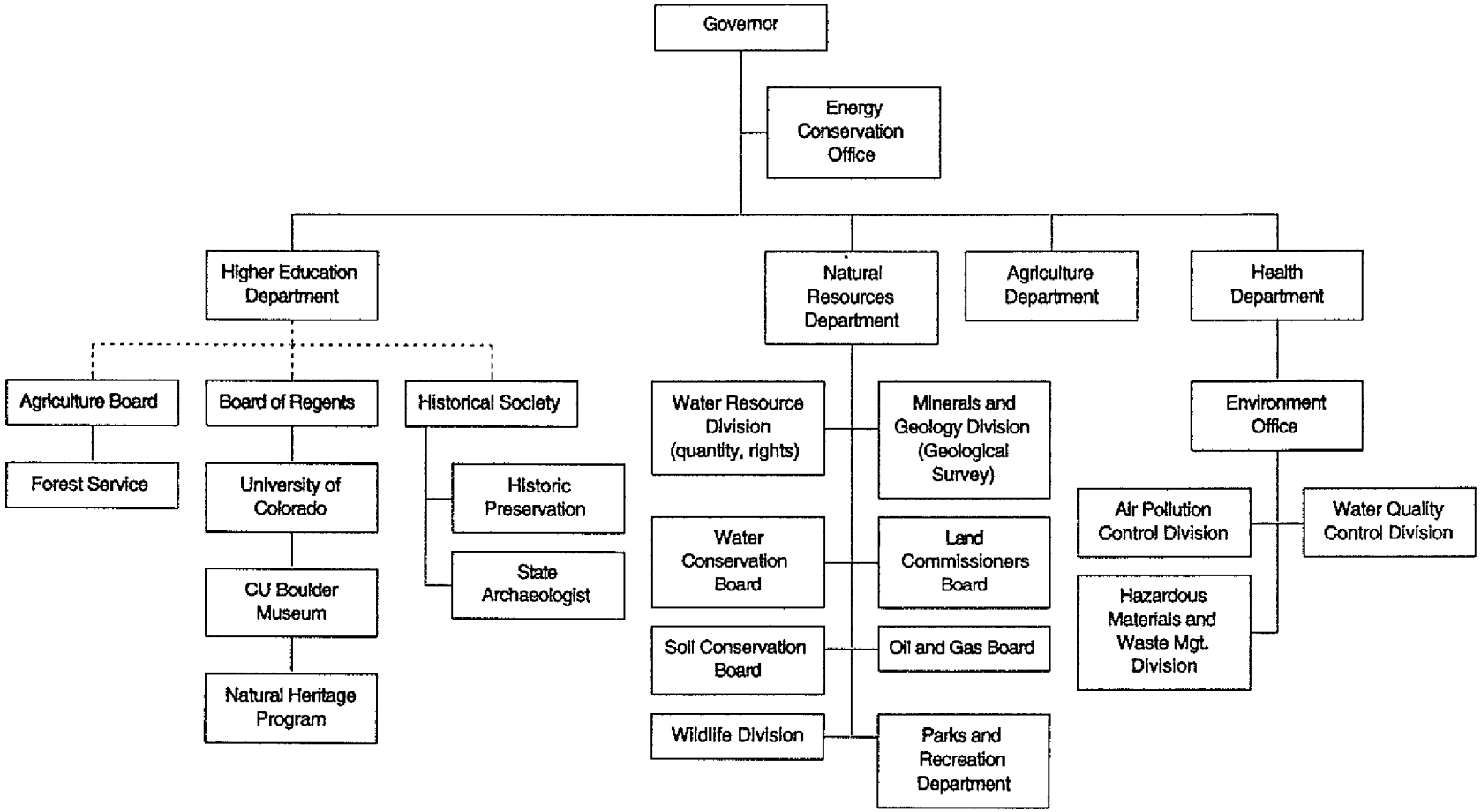
Warnecke, 1994

California - E/NR



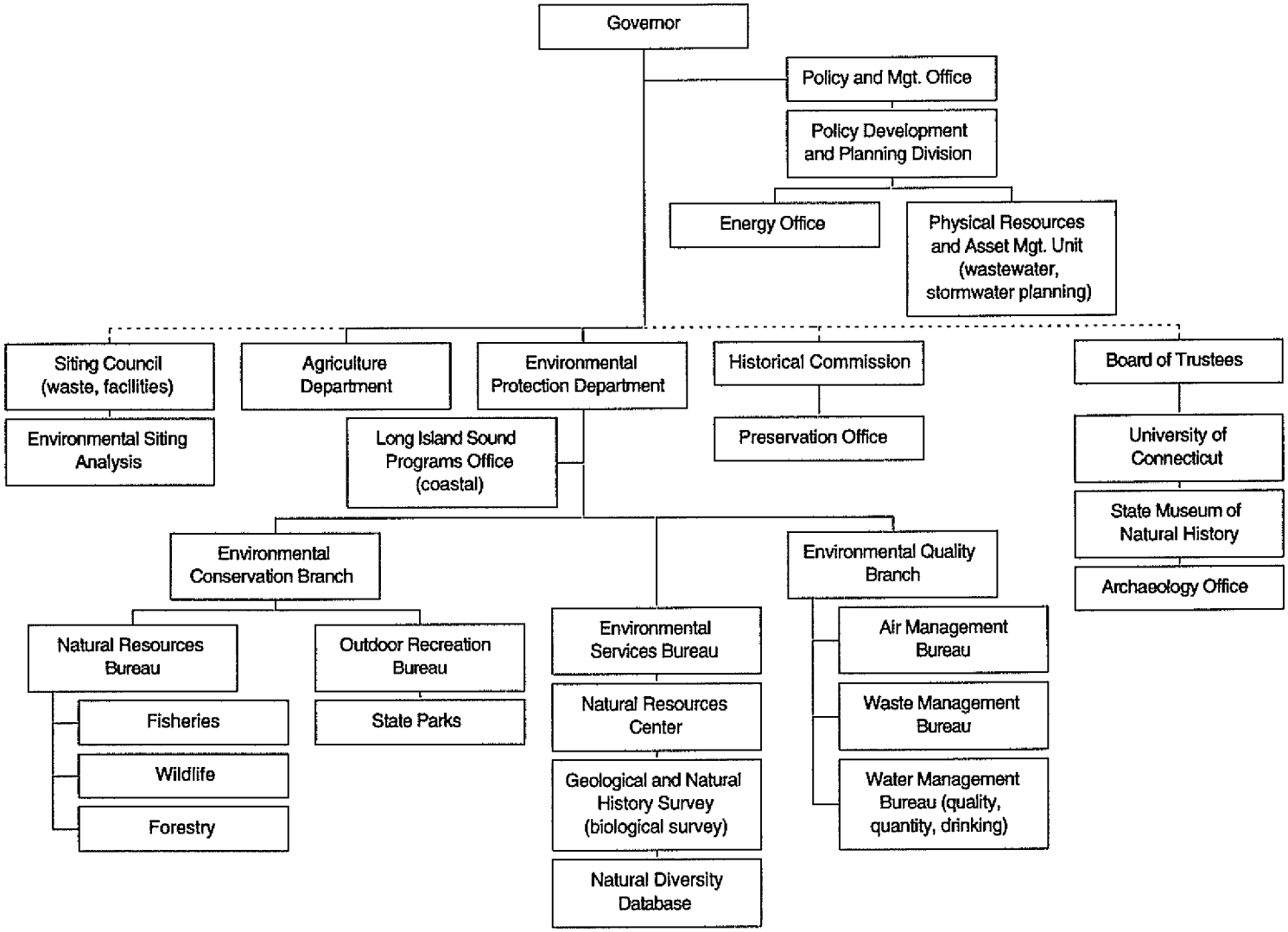
Warnecke, 1994

Colorado - E/NR



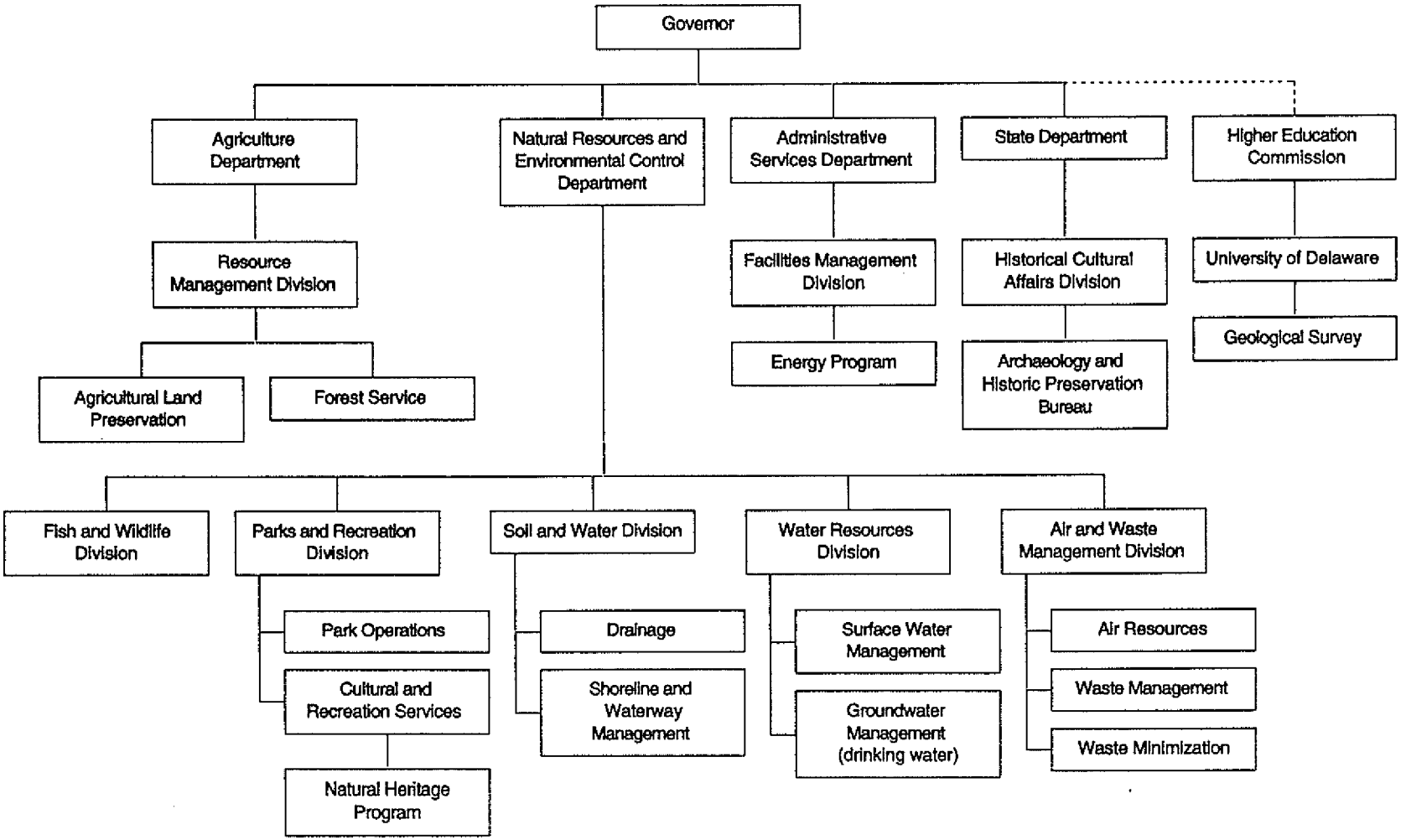
Warnecke, 1994

Connecticut - E/NR



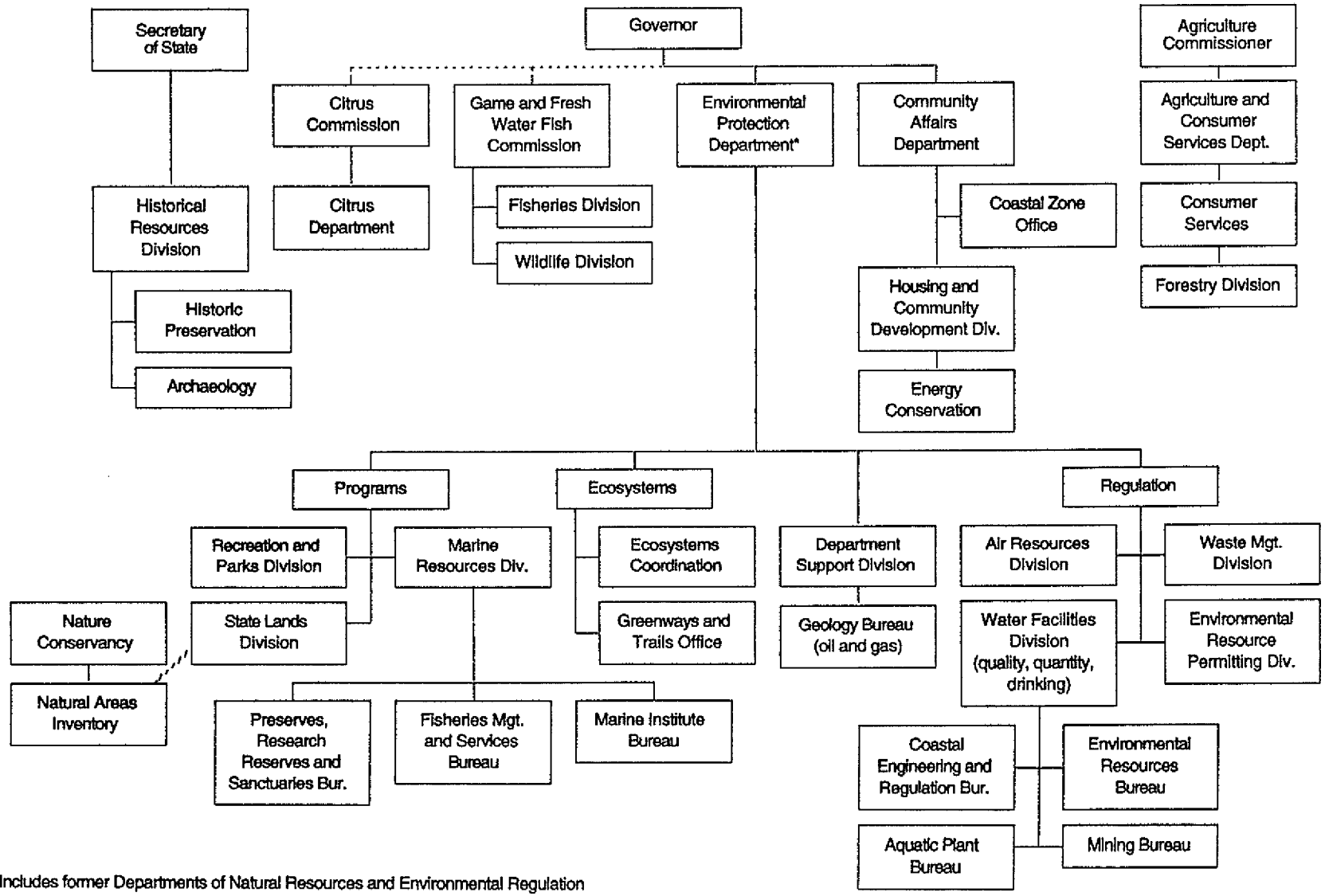
Warnecke, 1994

Delaware - E/NR



Warnecke, 1994

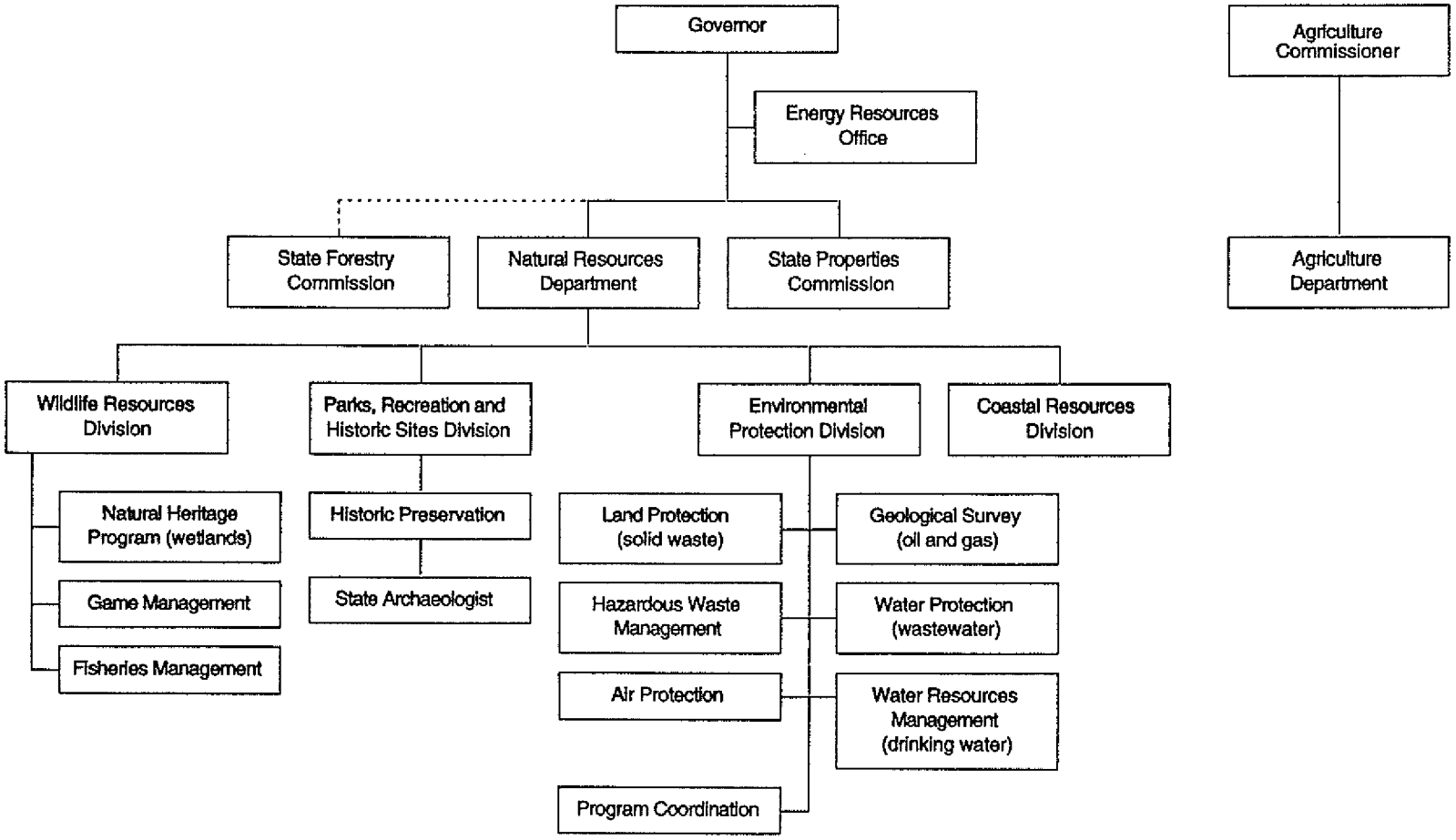
Florida - E/NR



*Includes former Departments of Natural Resources and Environmental Regulation

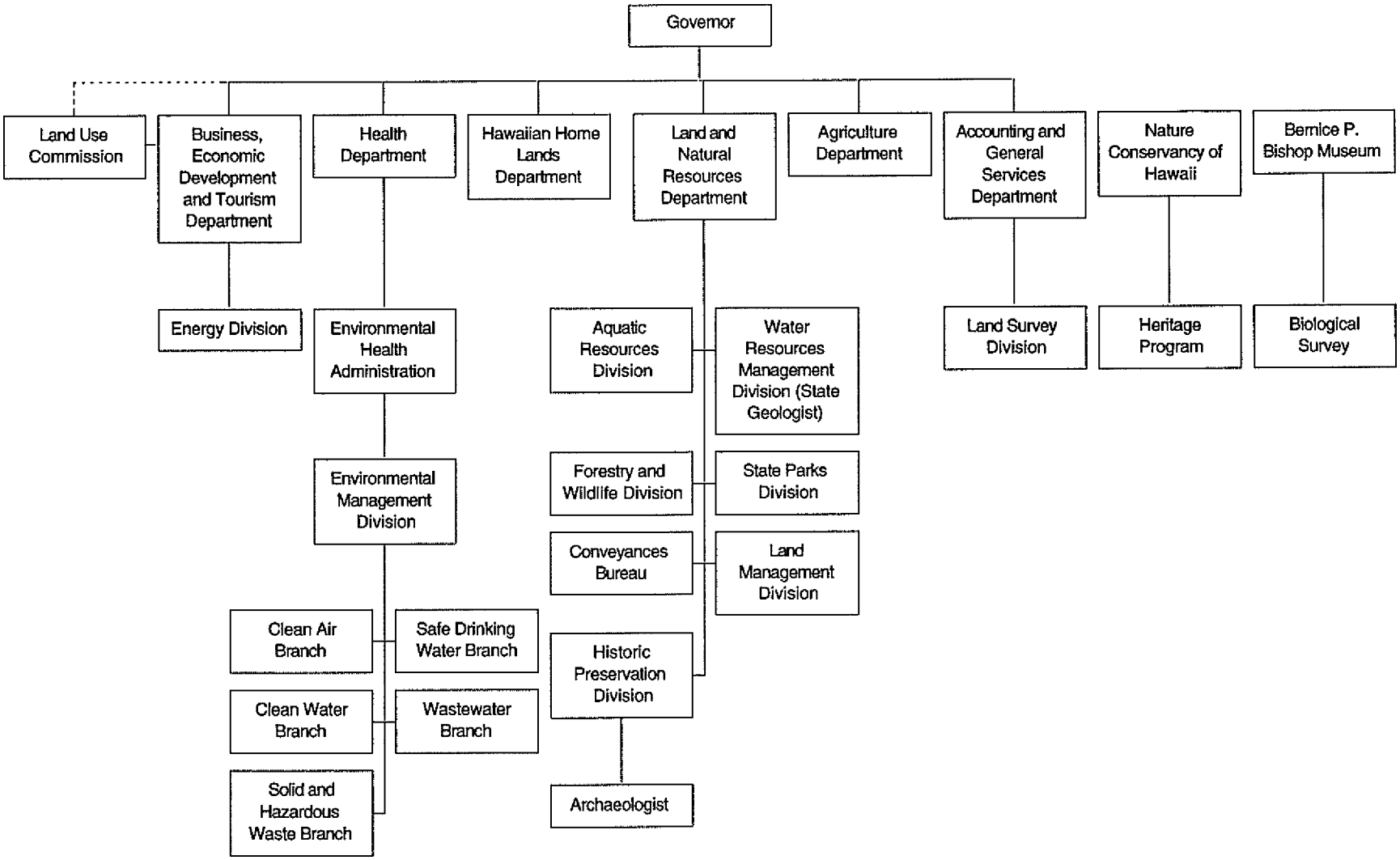
Warnecke, 1994

Georgia - E/NR



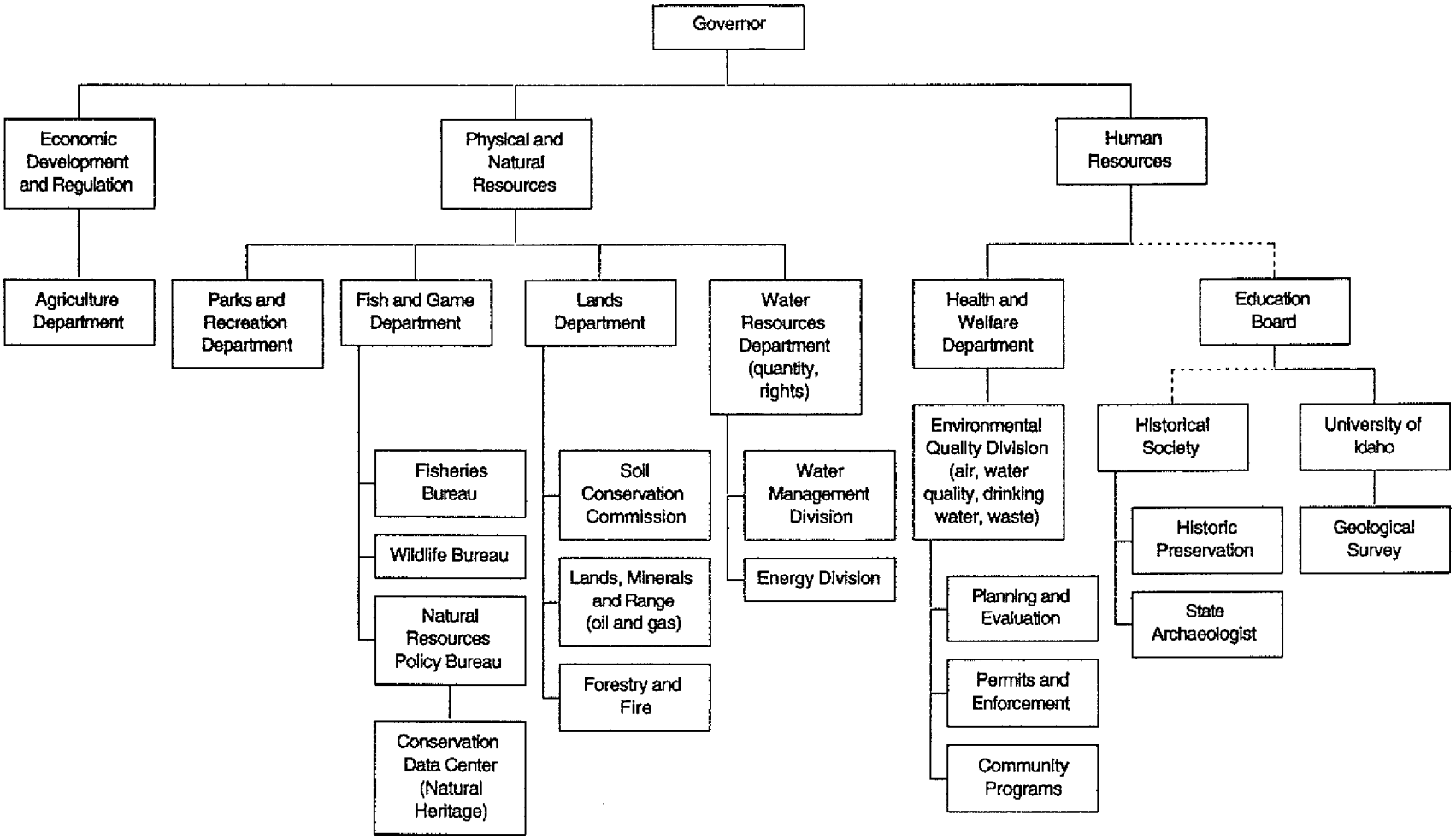
Warnecke, 1994

Hawaii - E/NR



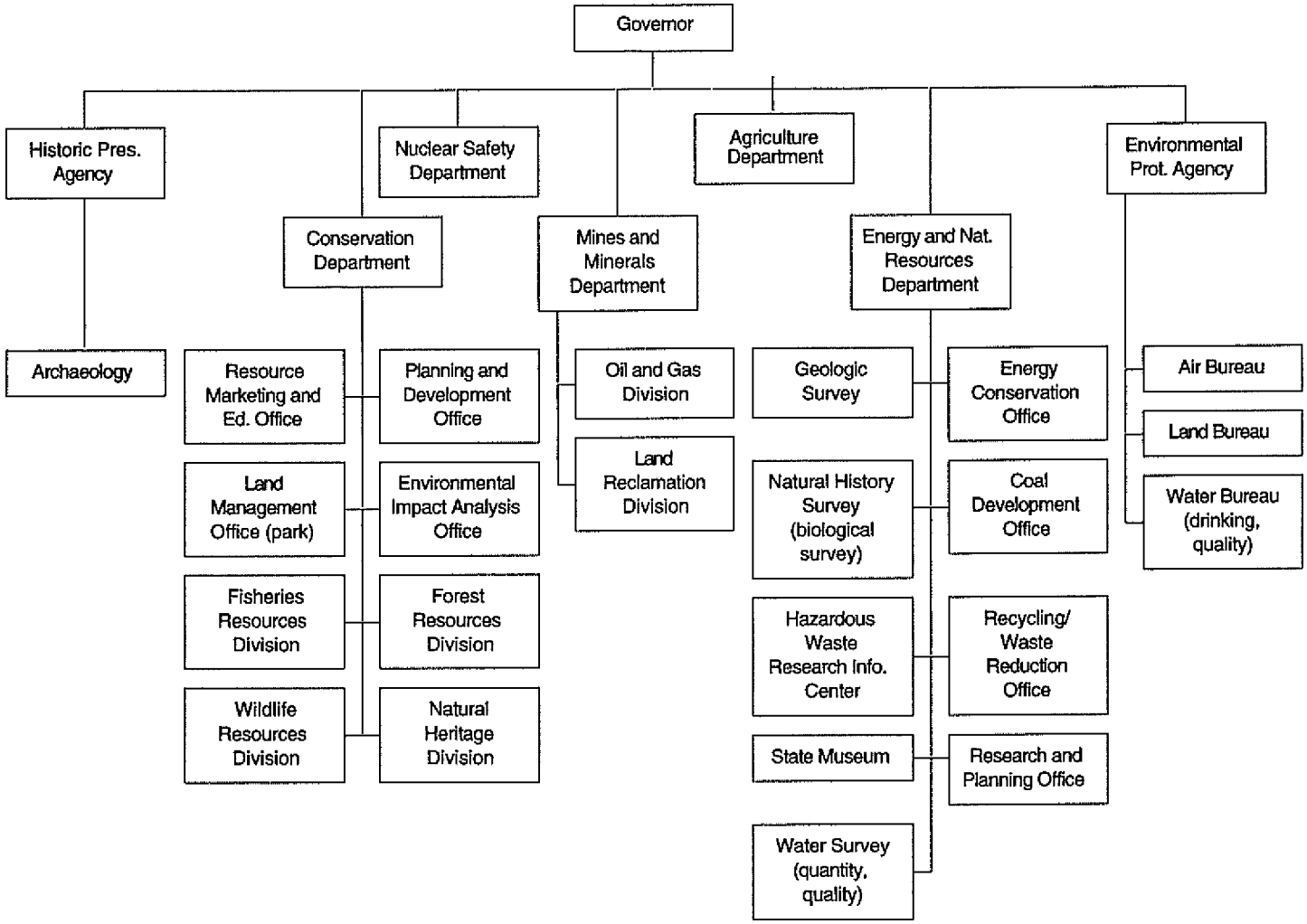
Warnecke, 1994

Idaho - E/NR



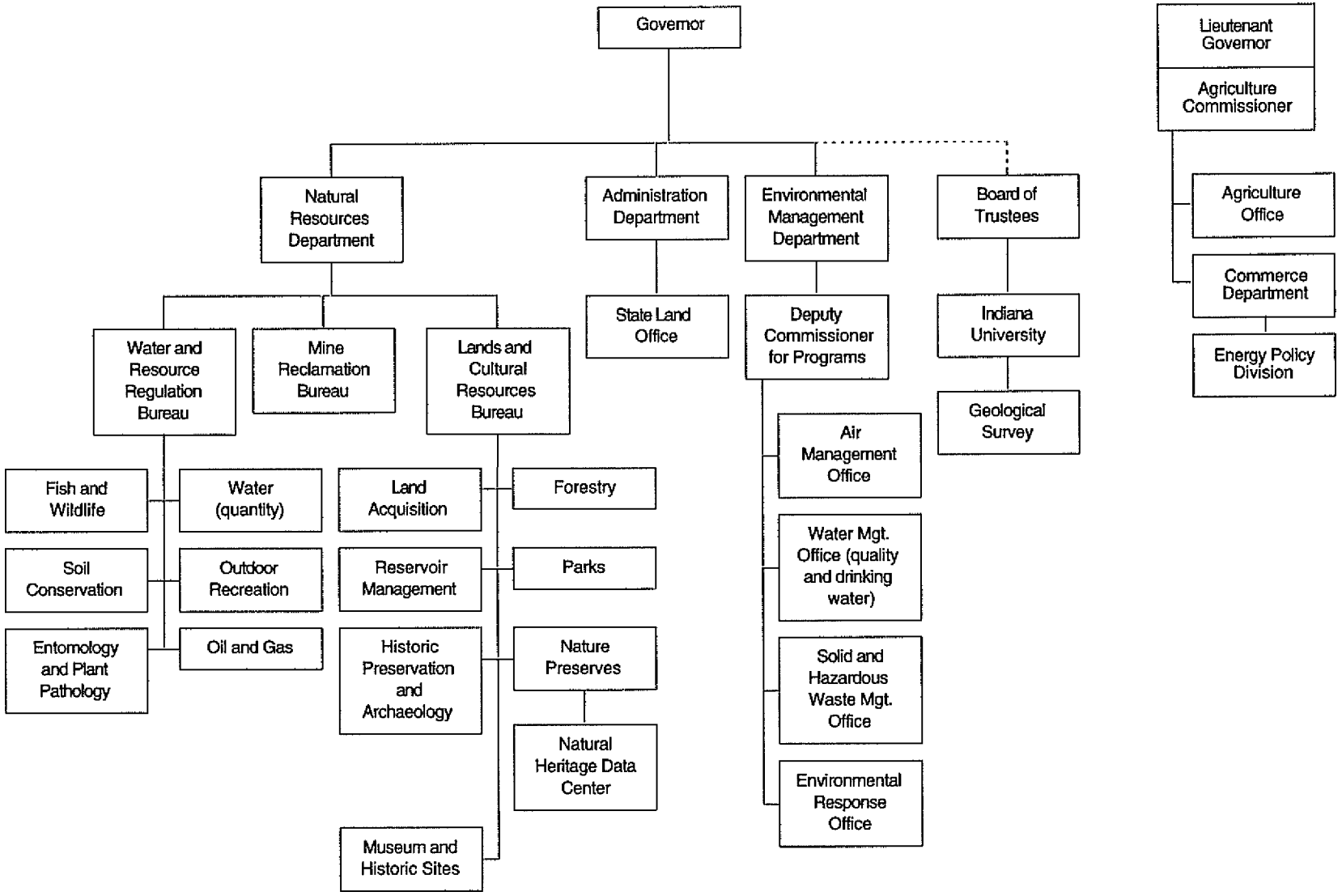
Warnecke, 1994

Illinois - E/NR



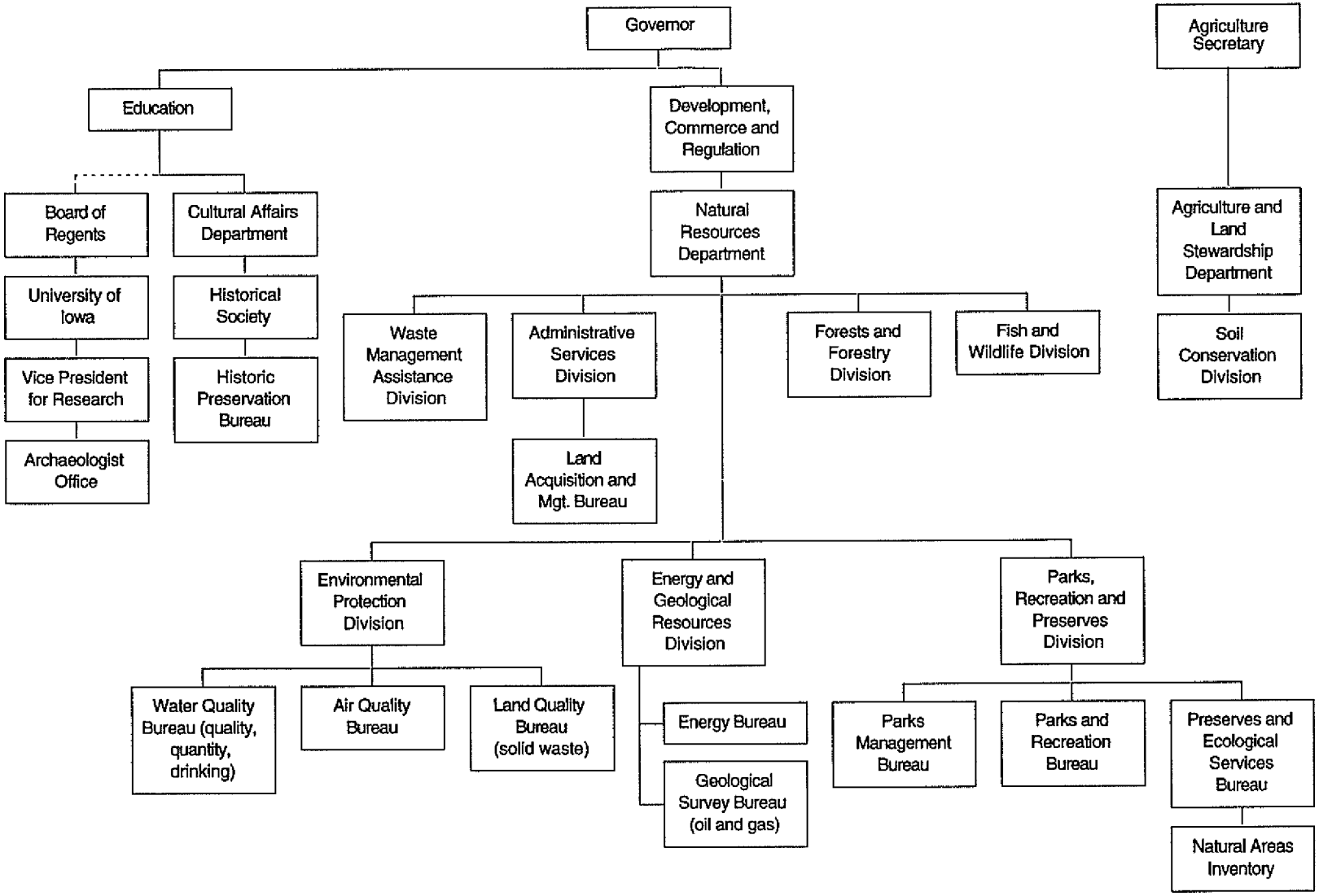
Warnecke, 1994

Indiana - E/NR



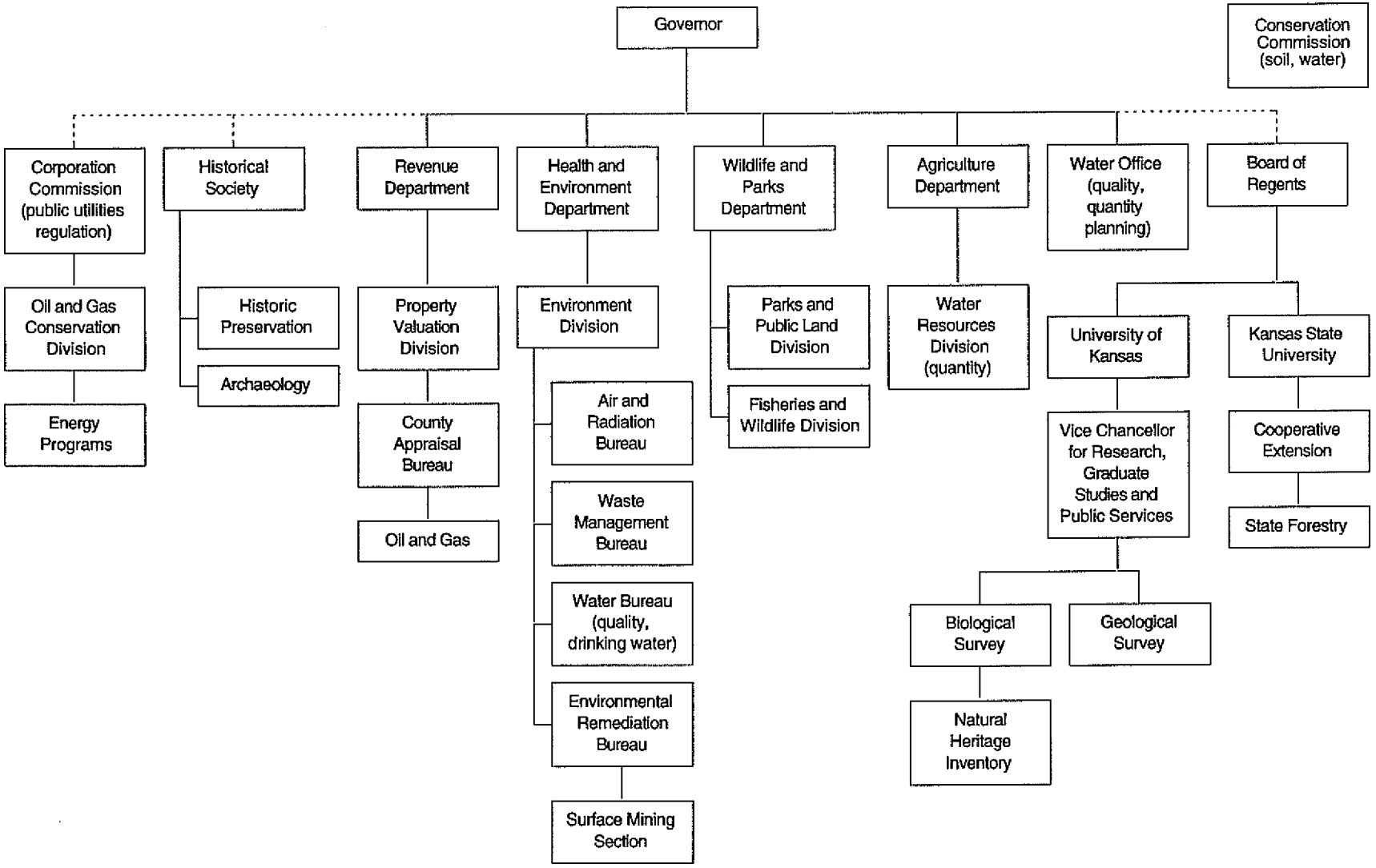
Warnecke, 1994

Iowa - E/NR



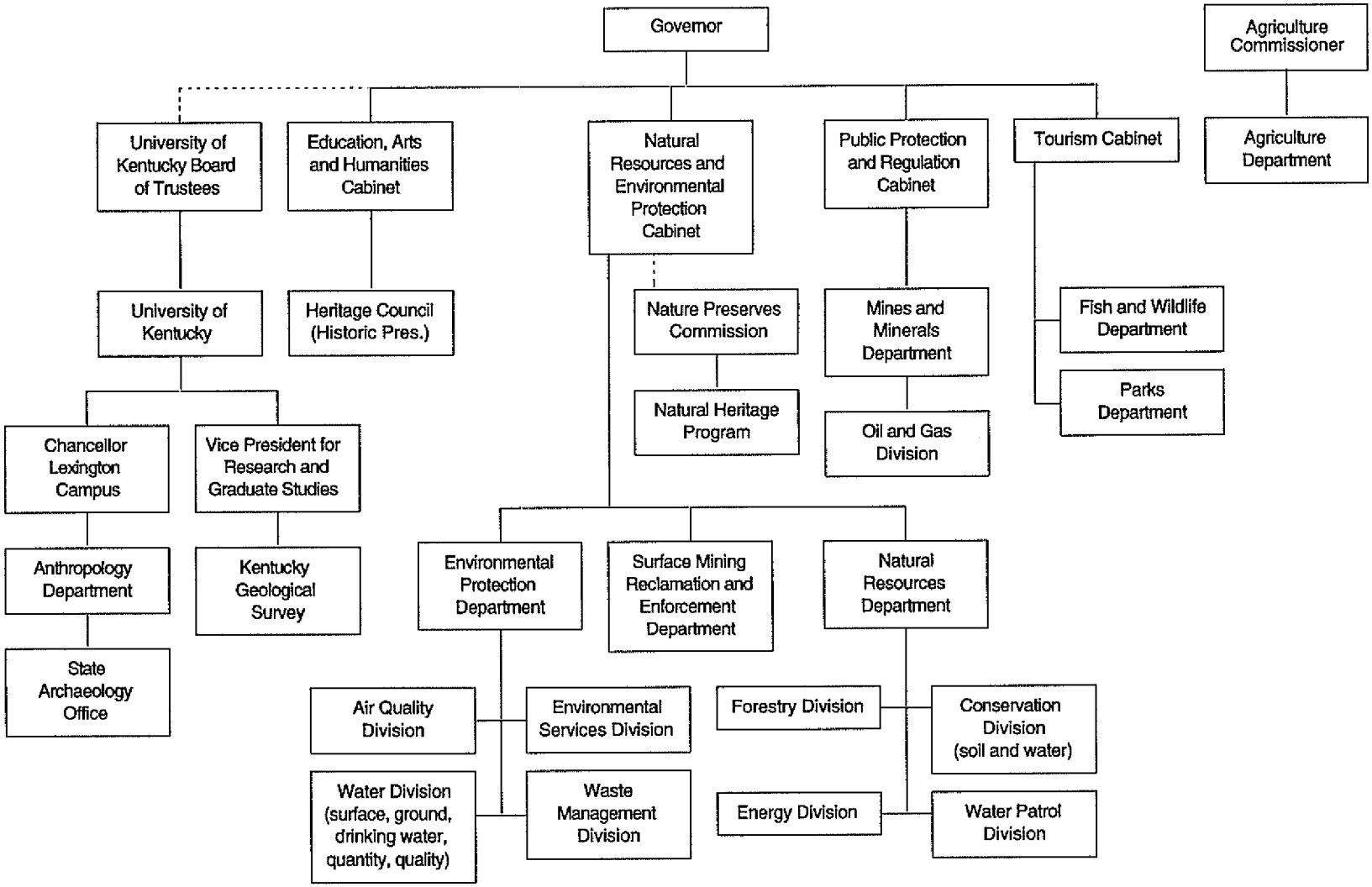
Warnecke, 1994

Kansas - E/NR



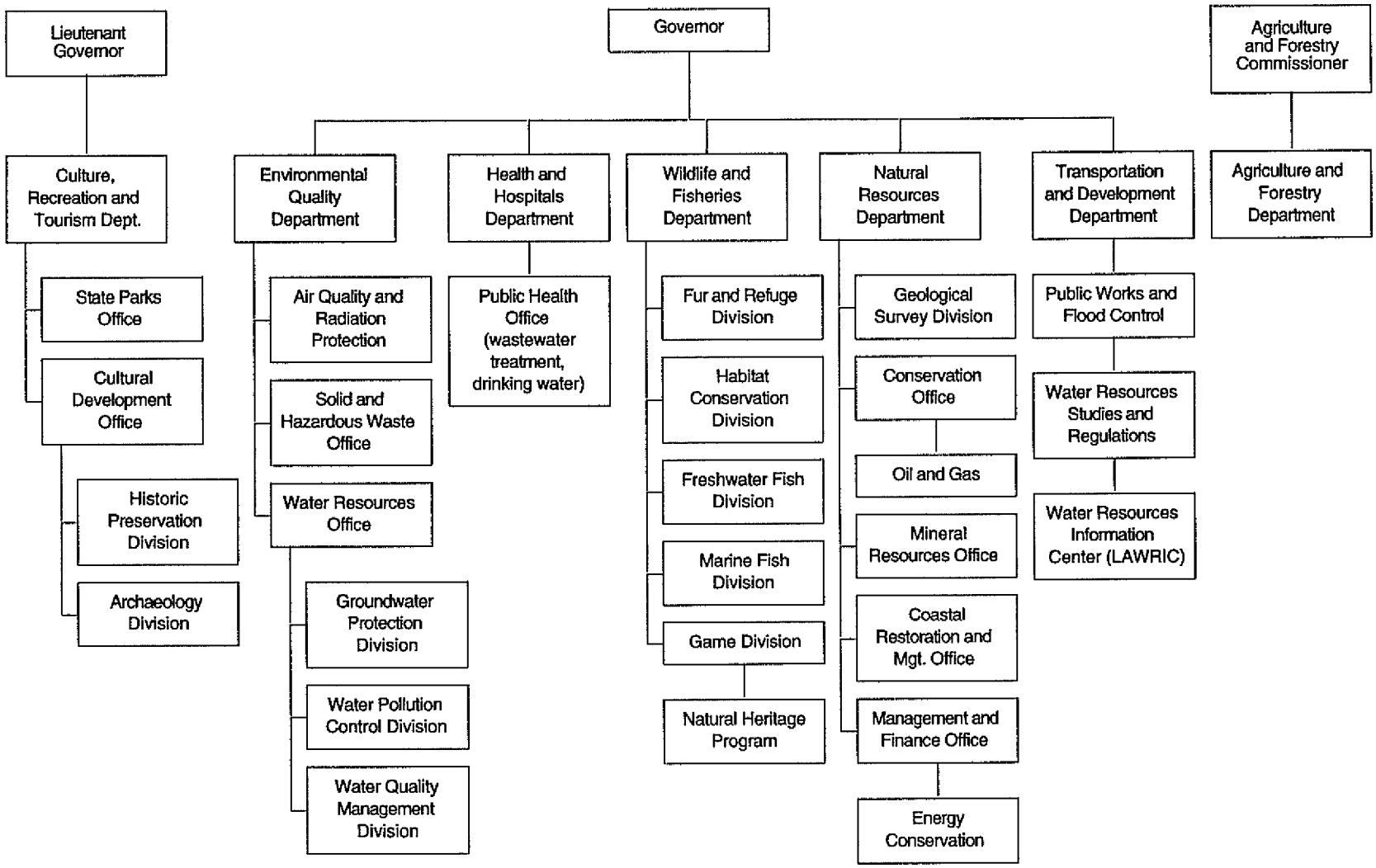
Warnecke, 1994

Kentucky - E/NR



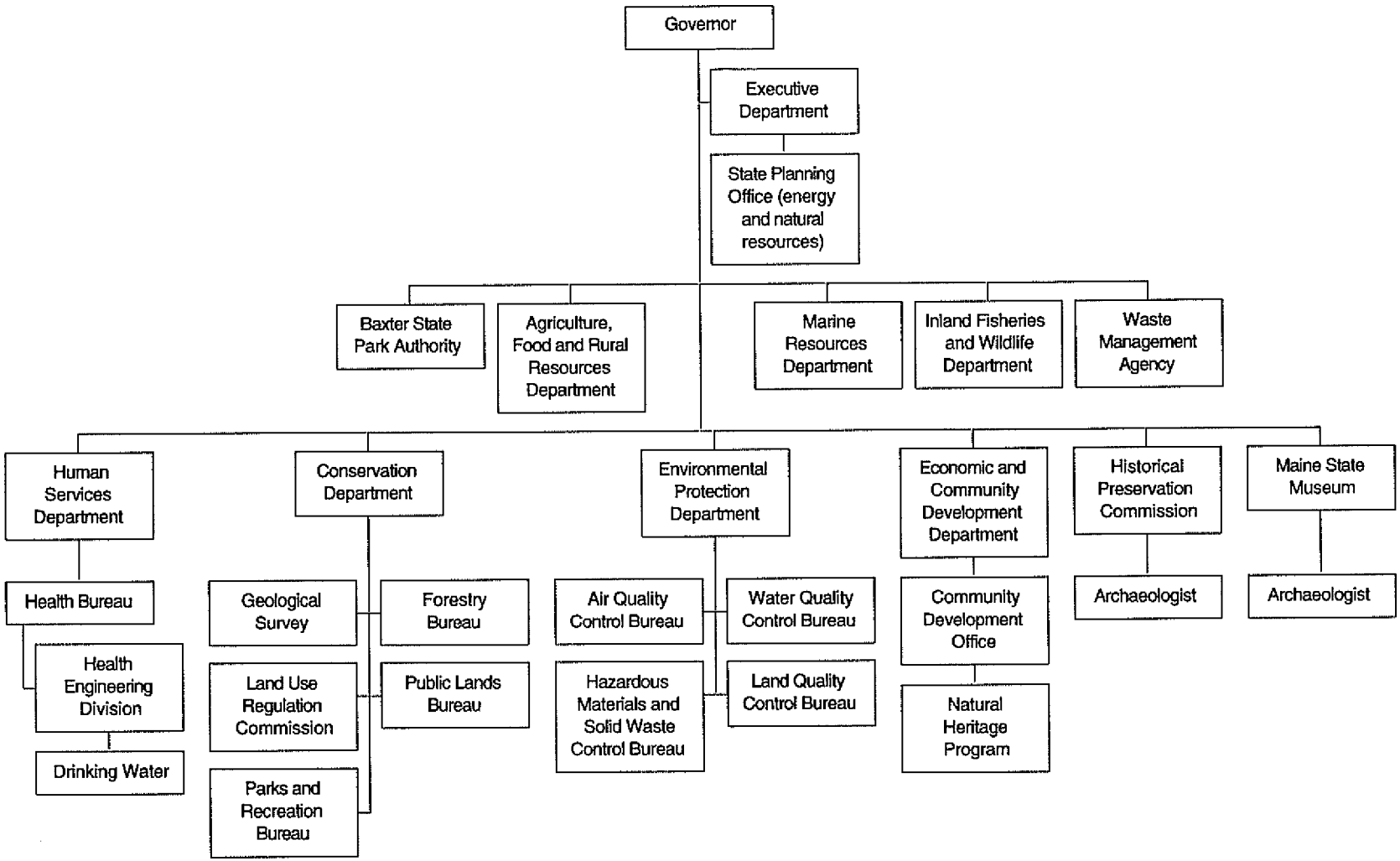
Warnecke, 1994

Louisiana - E/NR



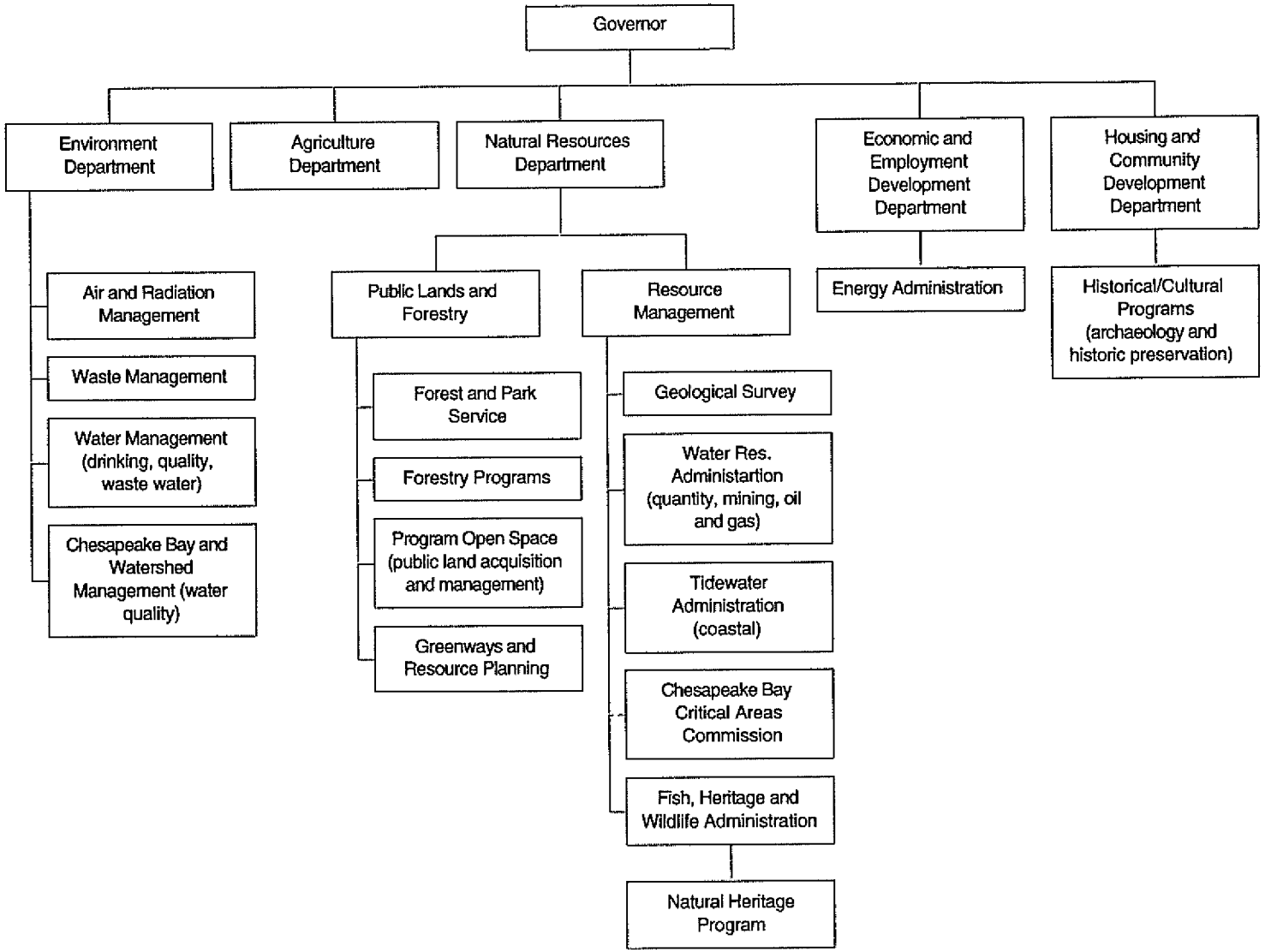
Warnecke, 1994

Maine - E/NR



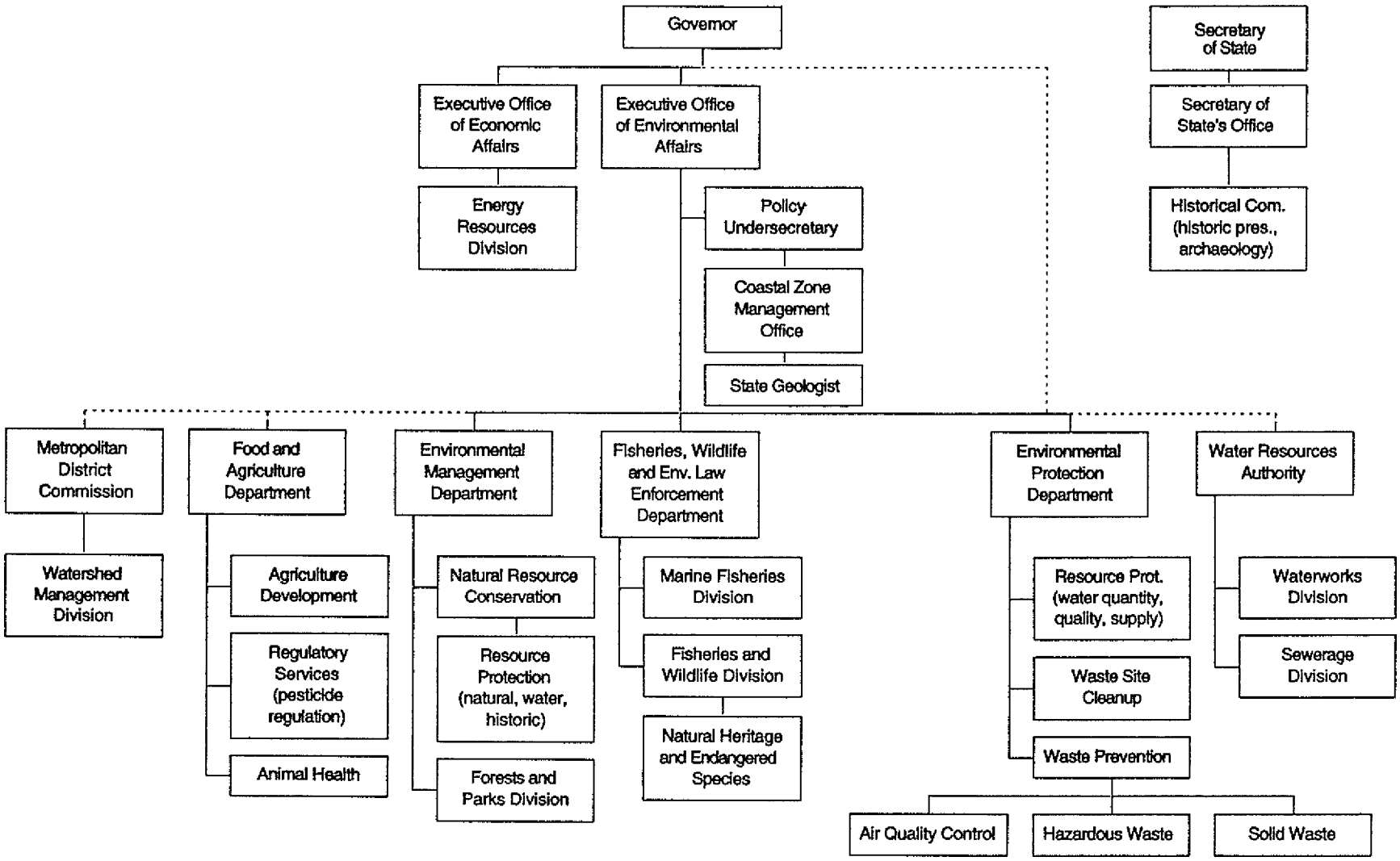
Warnecke, 1994

Maryland - E/NR


Governor
Environment Department
Agriculture Department
Natural Resources Department
Economic and Employment Development Department
Housing and Community Development Department
Air and Radiation Management
Waste Management
Water Management (drinking, quality, waste water)
Chesapeake Bay and Watershed Management (water quality)
Public Lands and Forestry
Resource Management
Energy Administration
Historical/Cultural Programs (archaeology and historic preservation)
Forest and Park Service
Forestry Programs
Program Open Space (public land acquisition and management)
Greenways and Resource Planning
Geological Survey
Water Res. Administartion (quantity, mining, oil and gas)
Tidewater Administration (coastal)
Chesapeake Bay Critical Areas Commission
Fish, Heritage and Wildlife Administration
Natural Heritage Program

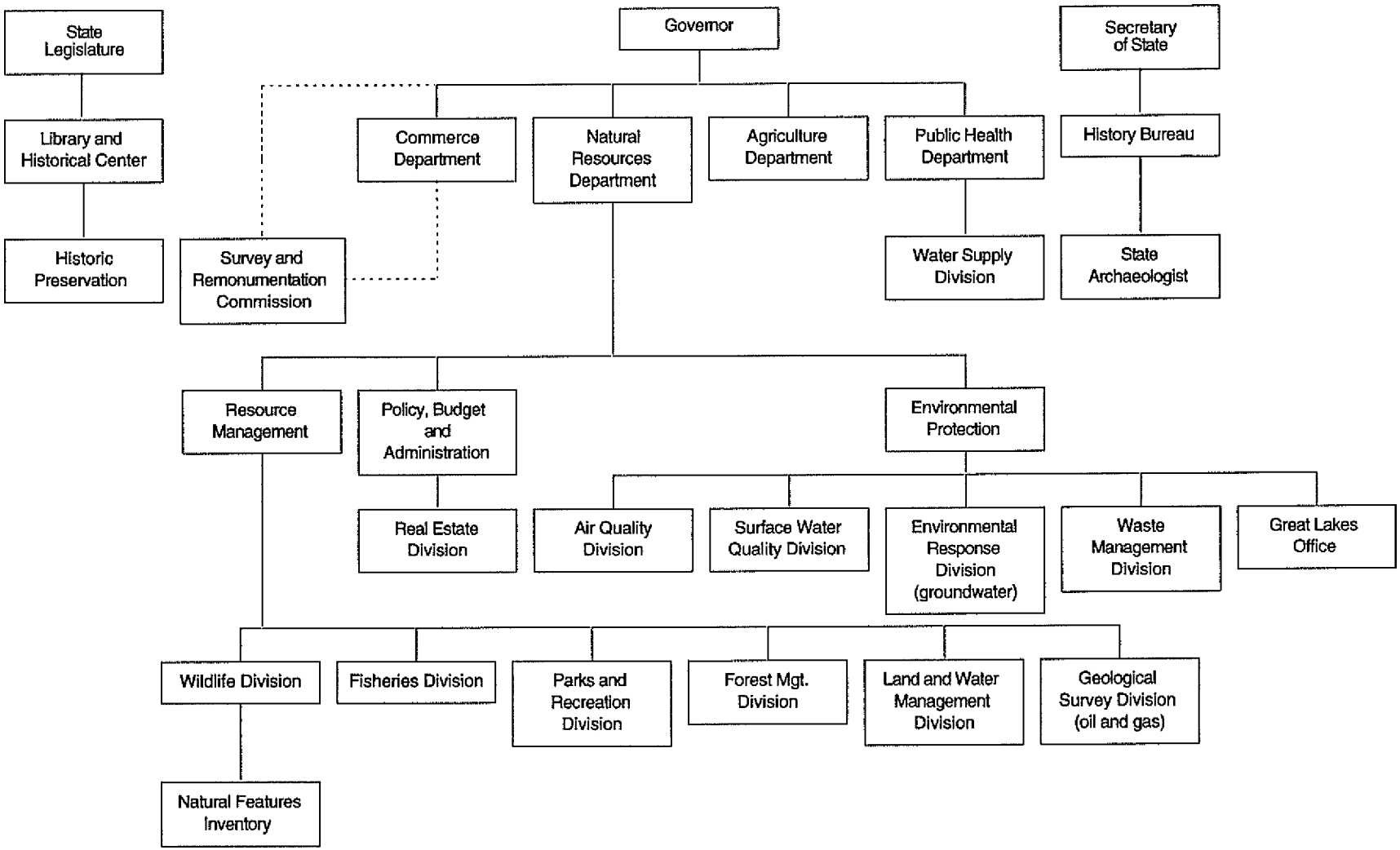
Warnecke, 1994

Massachusetts - E/NR



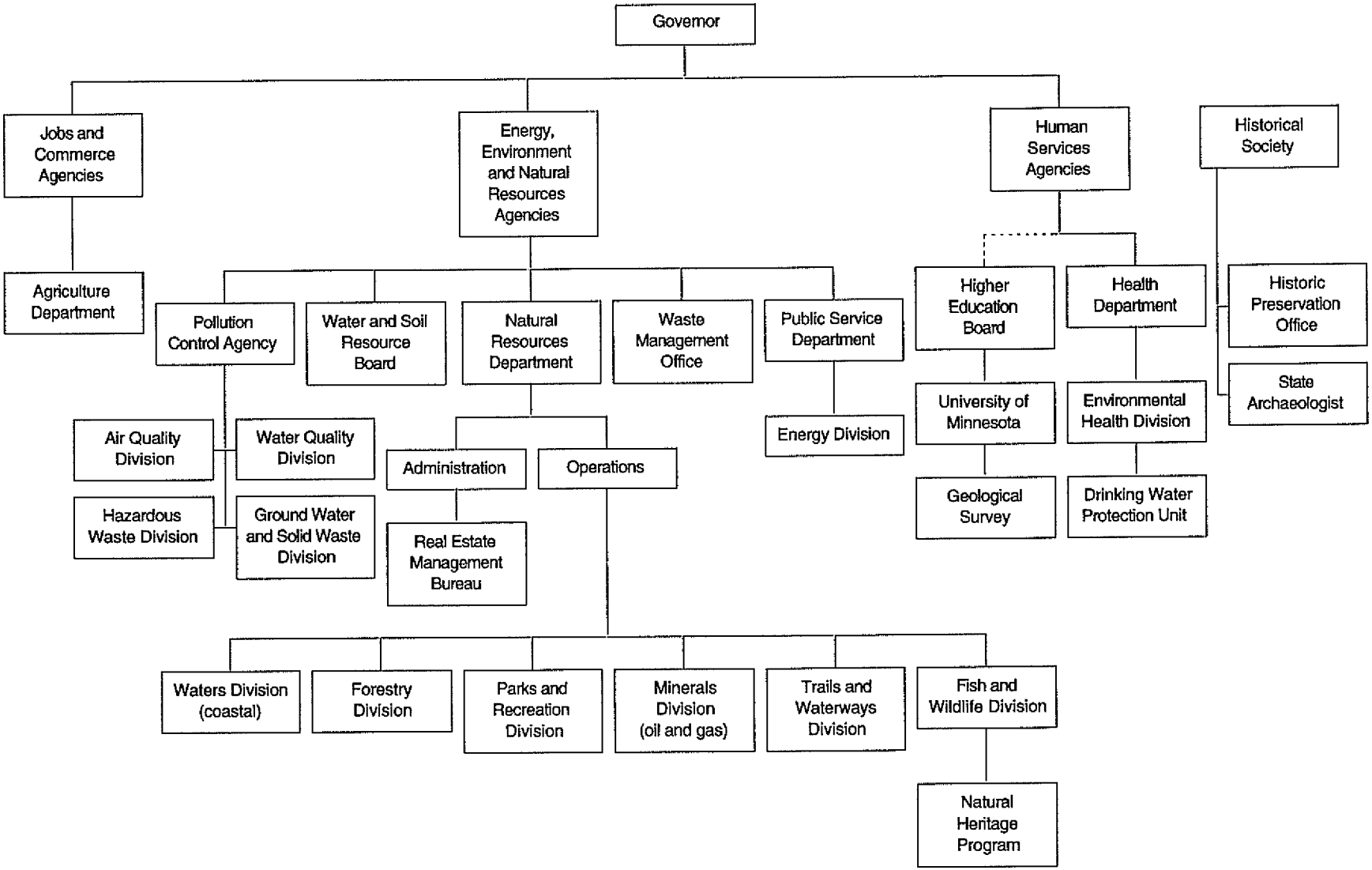
Warnecke, 1994

Michigan - E/NR



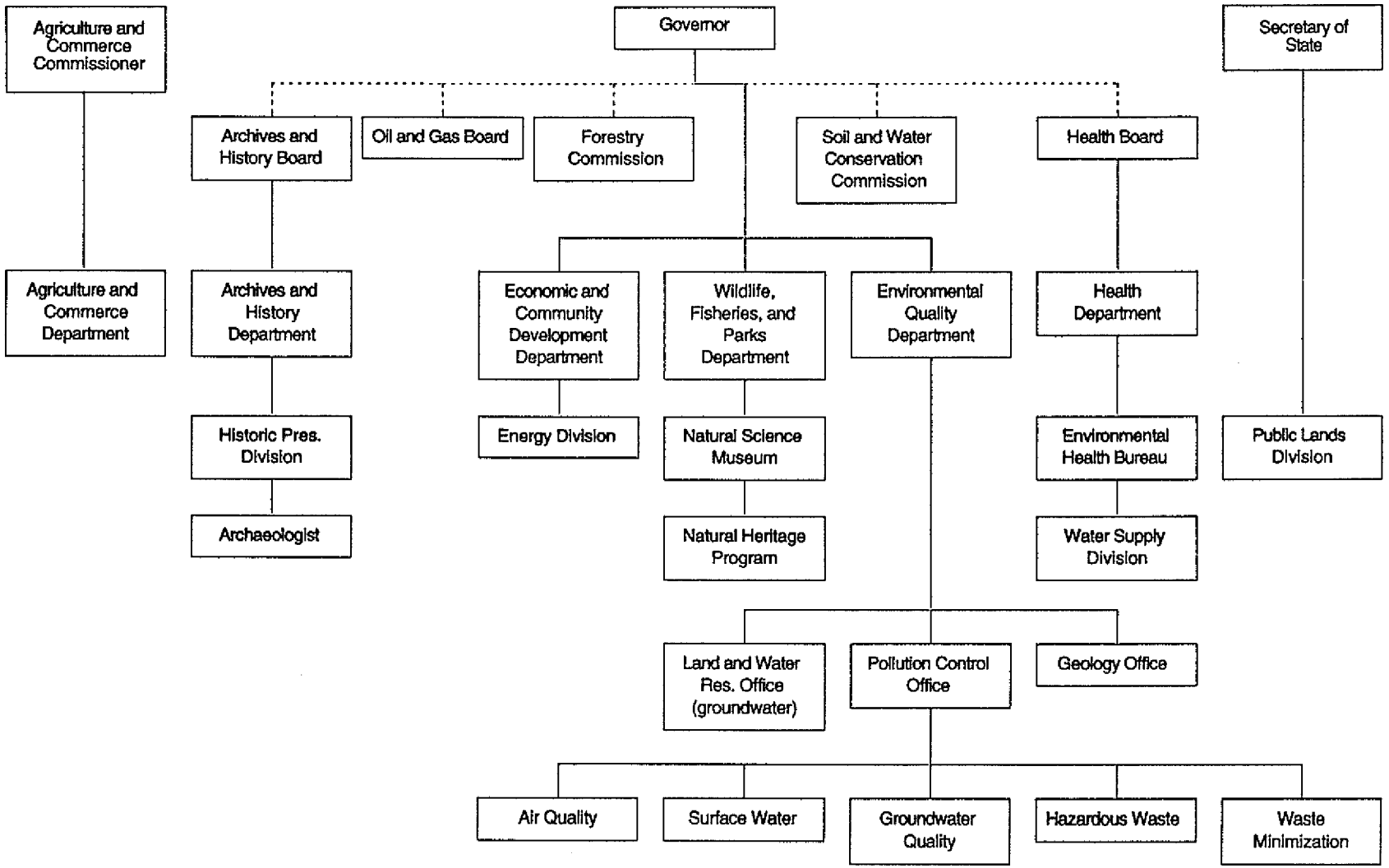
Warnecke, 1994

Minnesota - E/NR



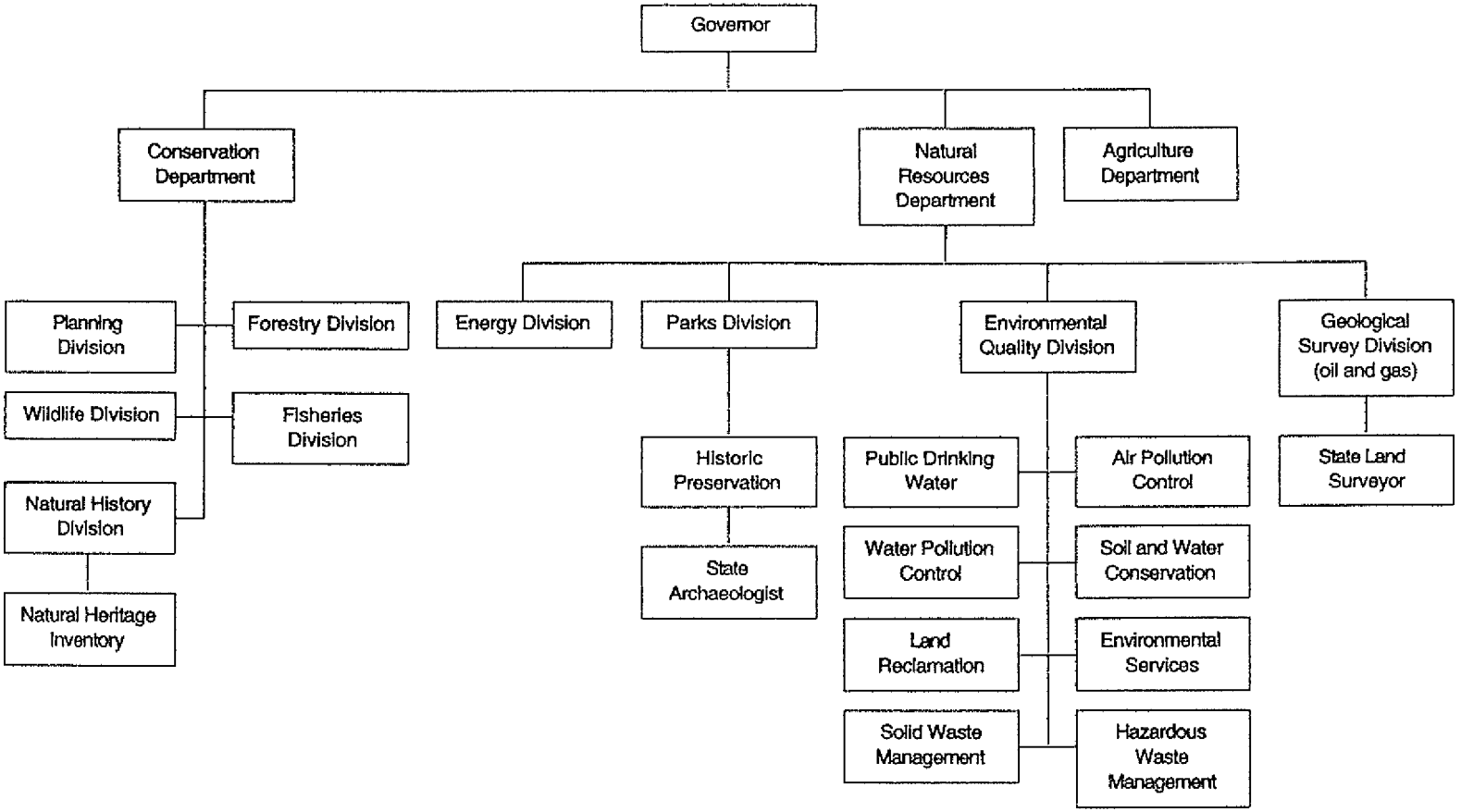
Warnecke, 1994

Mississippi - E/NR



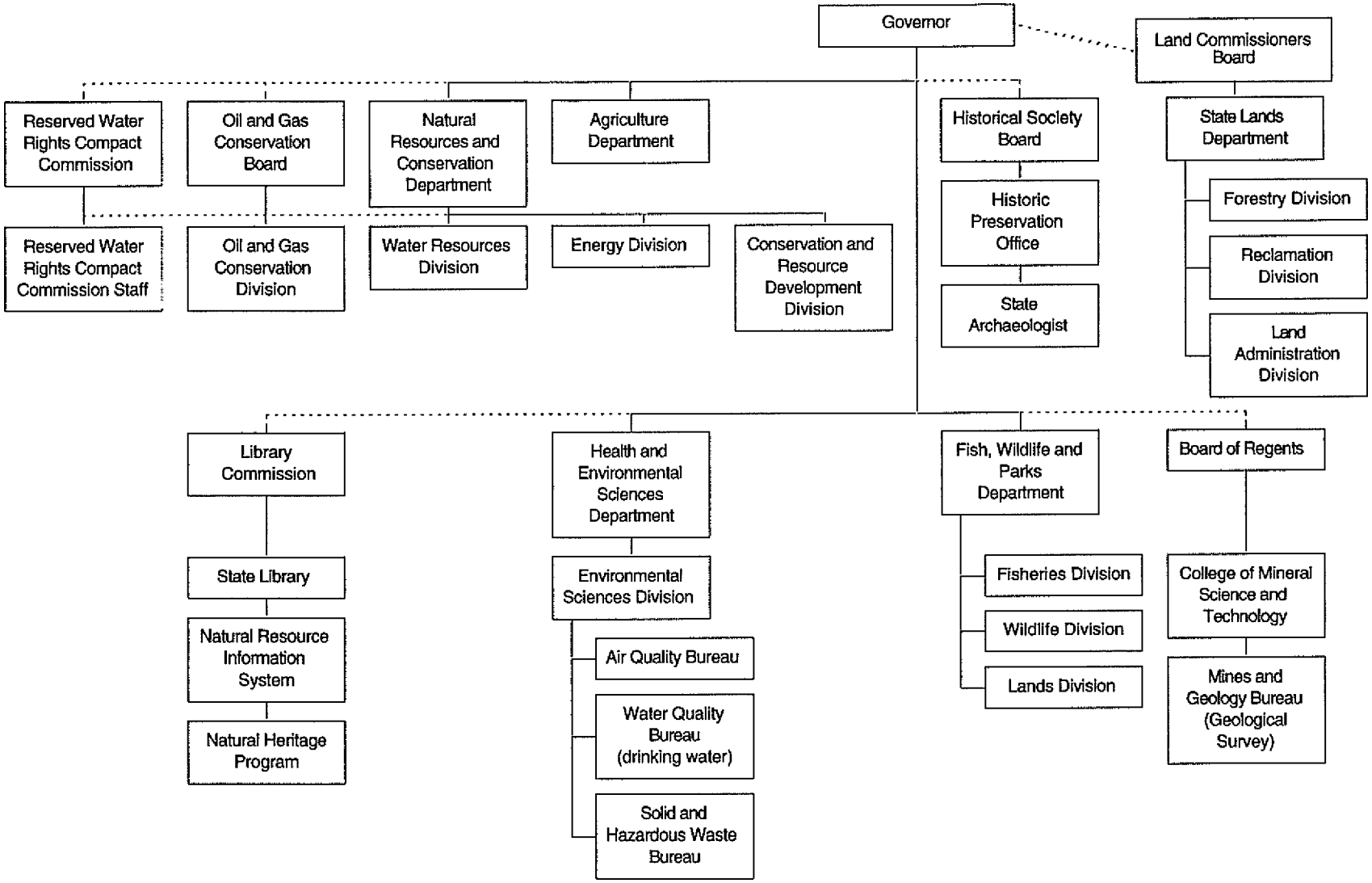
Warnecke, 1994

Missouri - E/NR



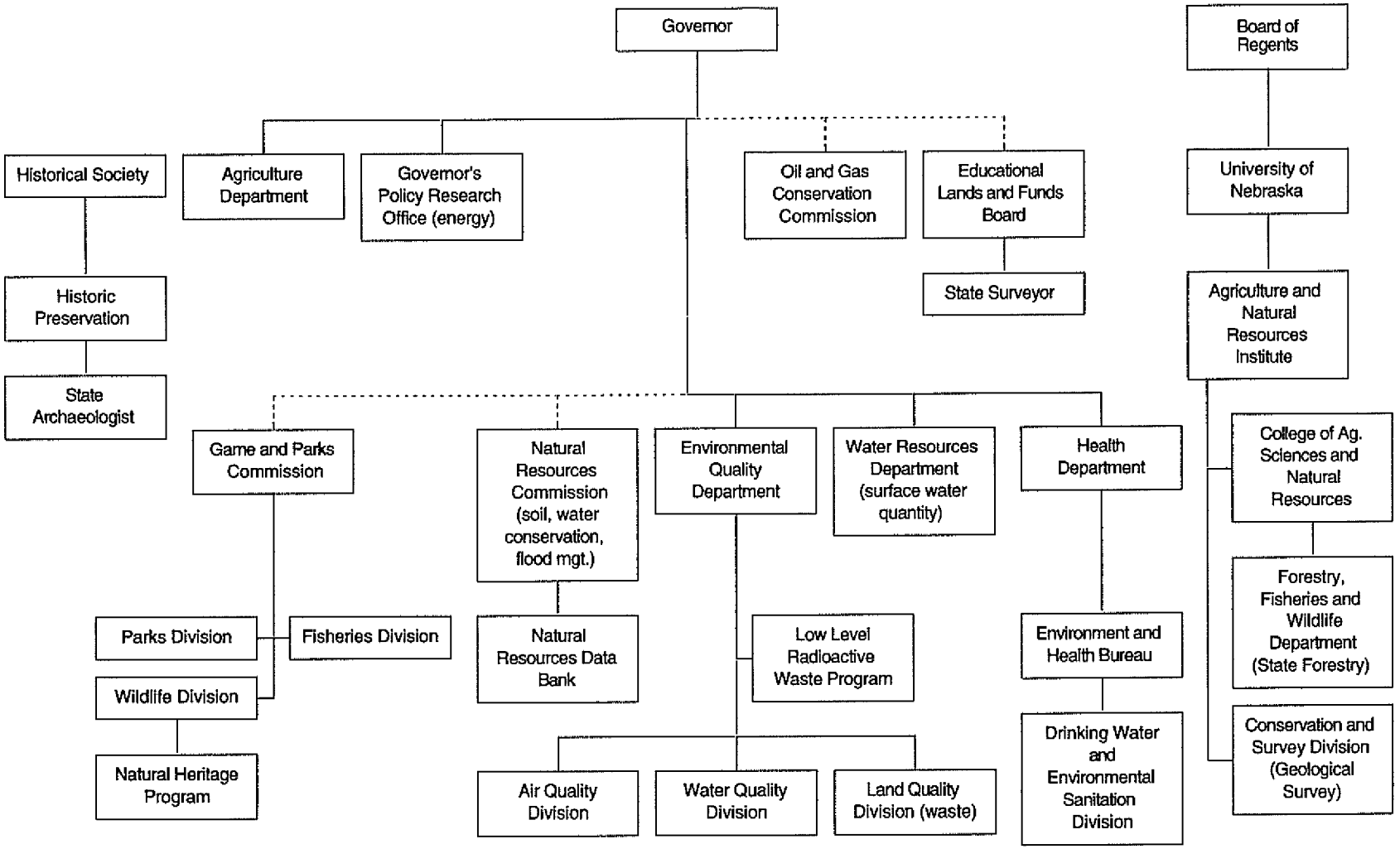
Warnecke, 1994

Montana - E/NR



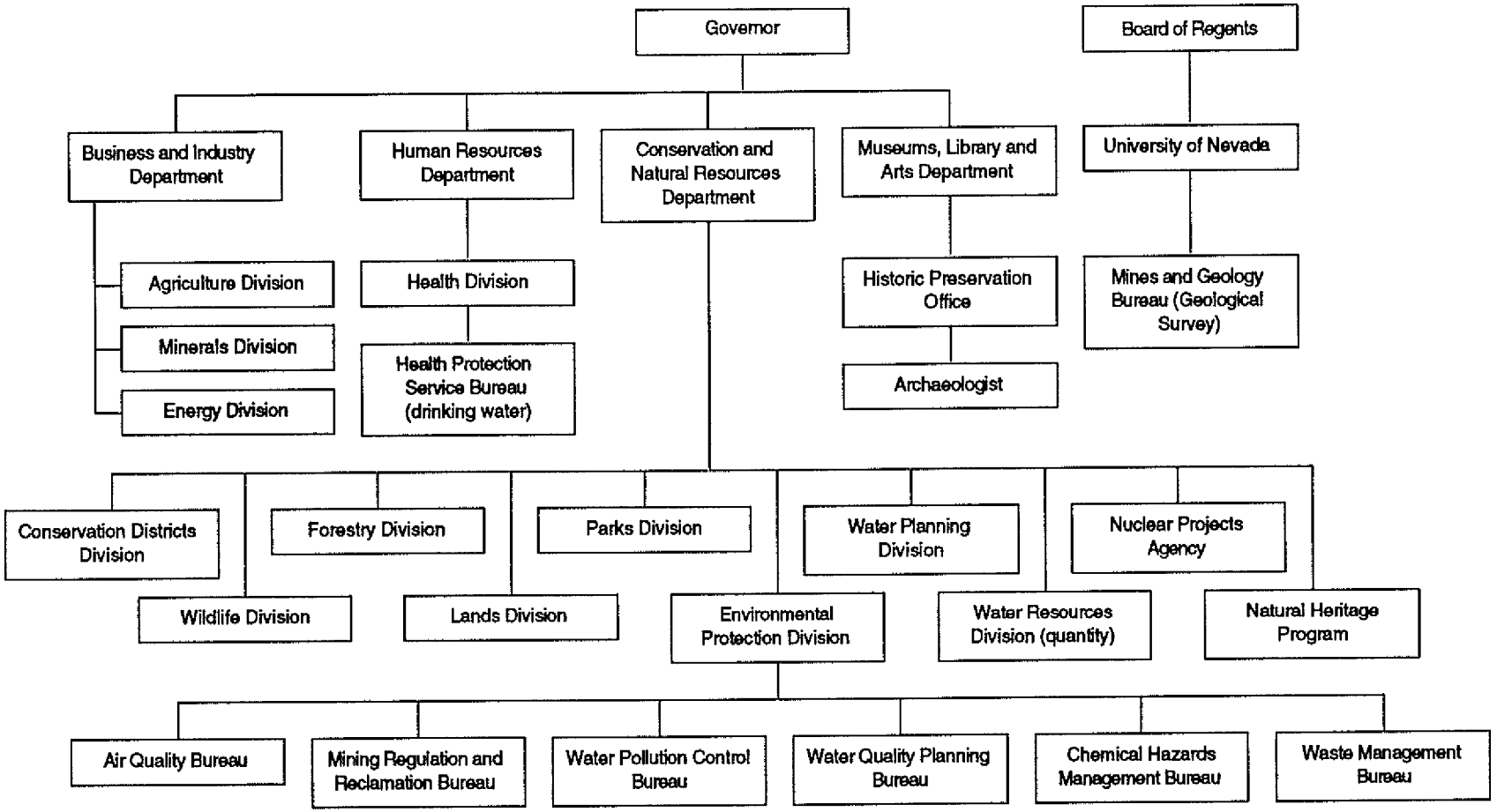
Warnecke, 1994

Nebraska - E/NR



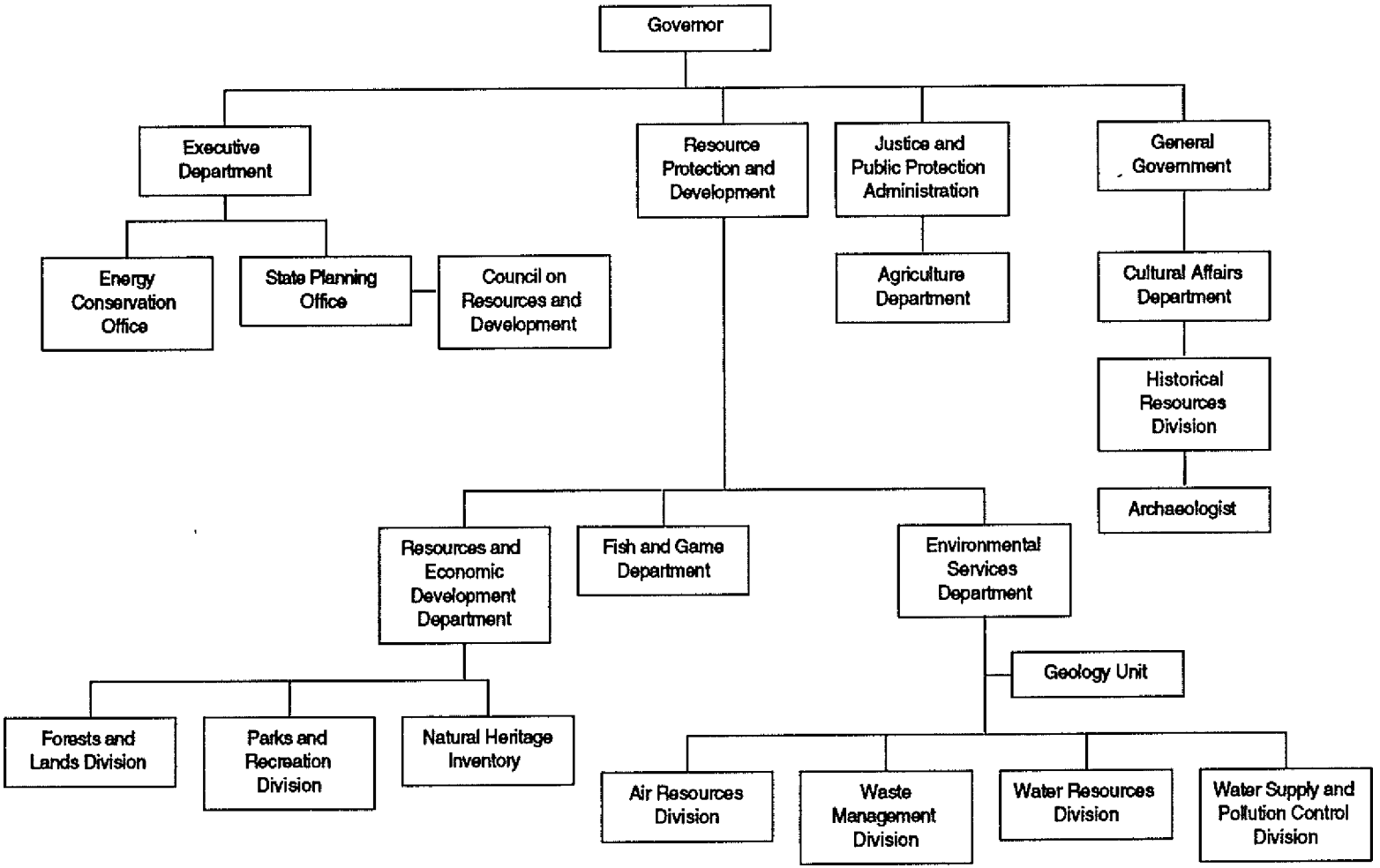
Warnecke, 1994

Nevada - E/NR



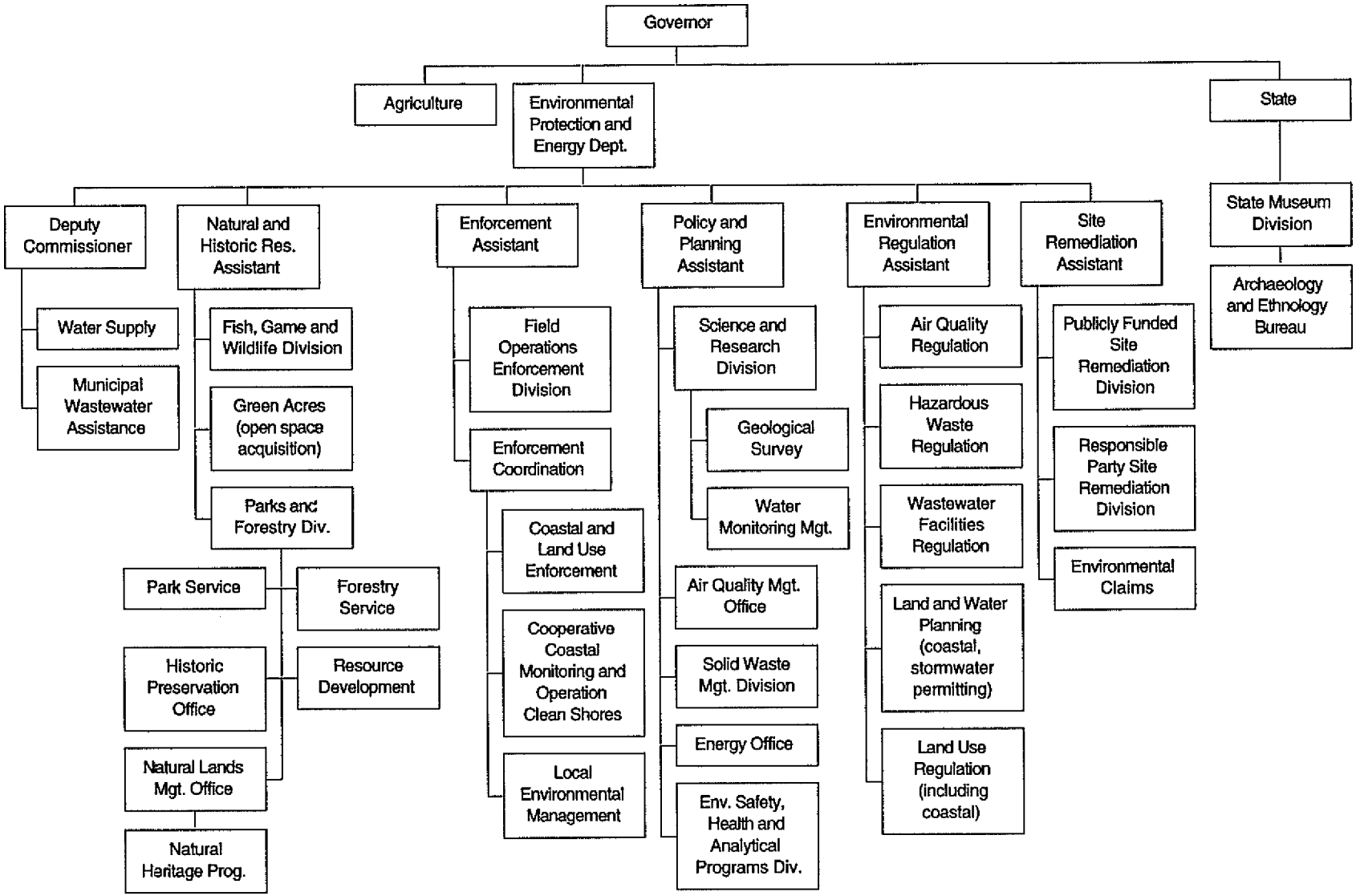
Warnecke, 1994

New Hampshire - E/NR



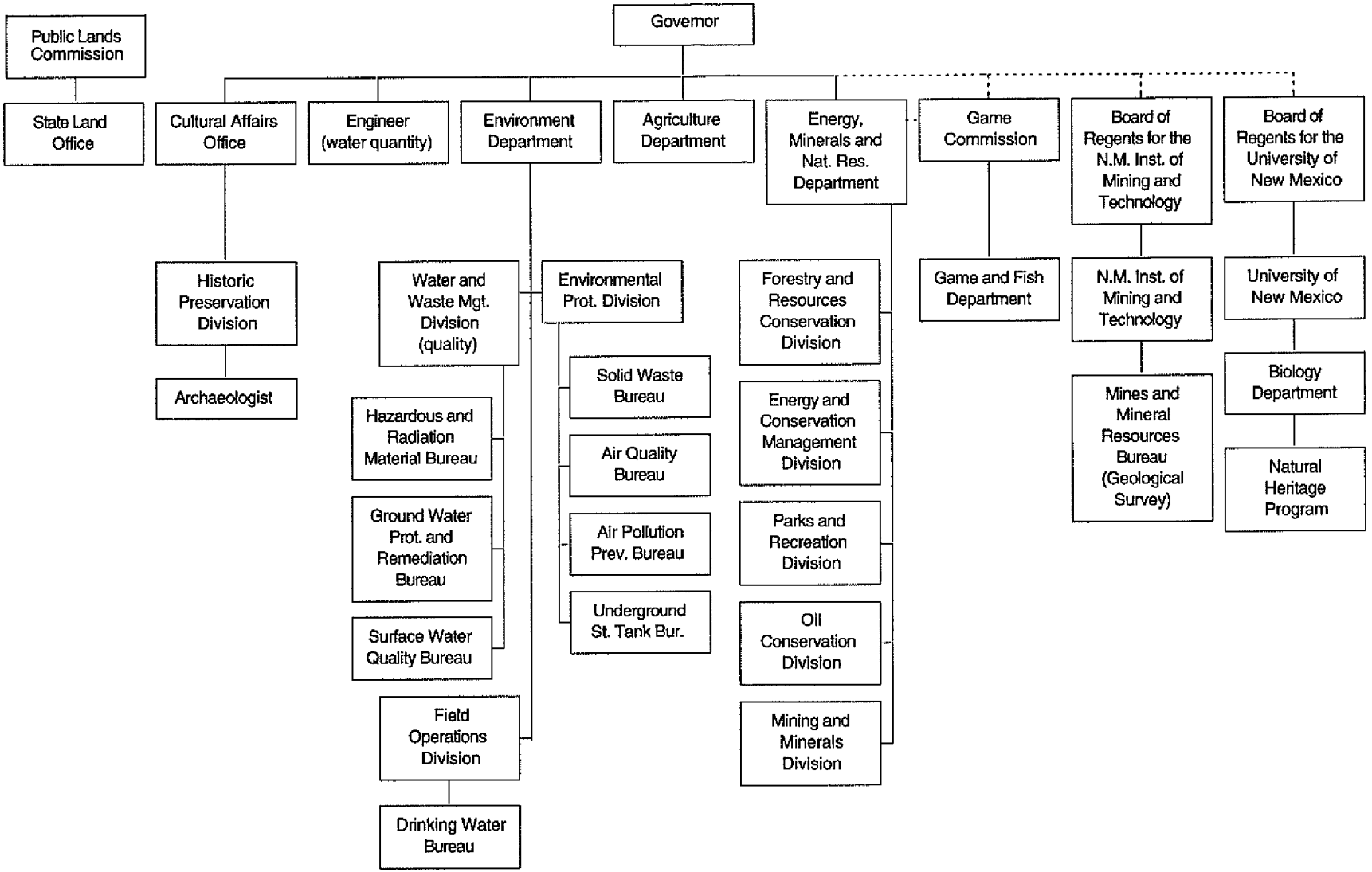
Warnecke, 1994

New Jersey - E/NR



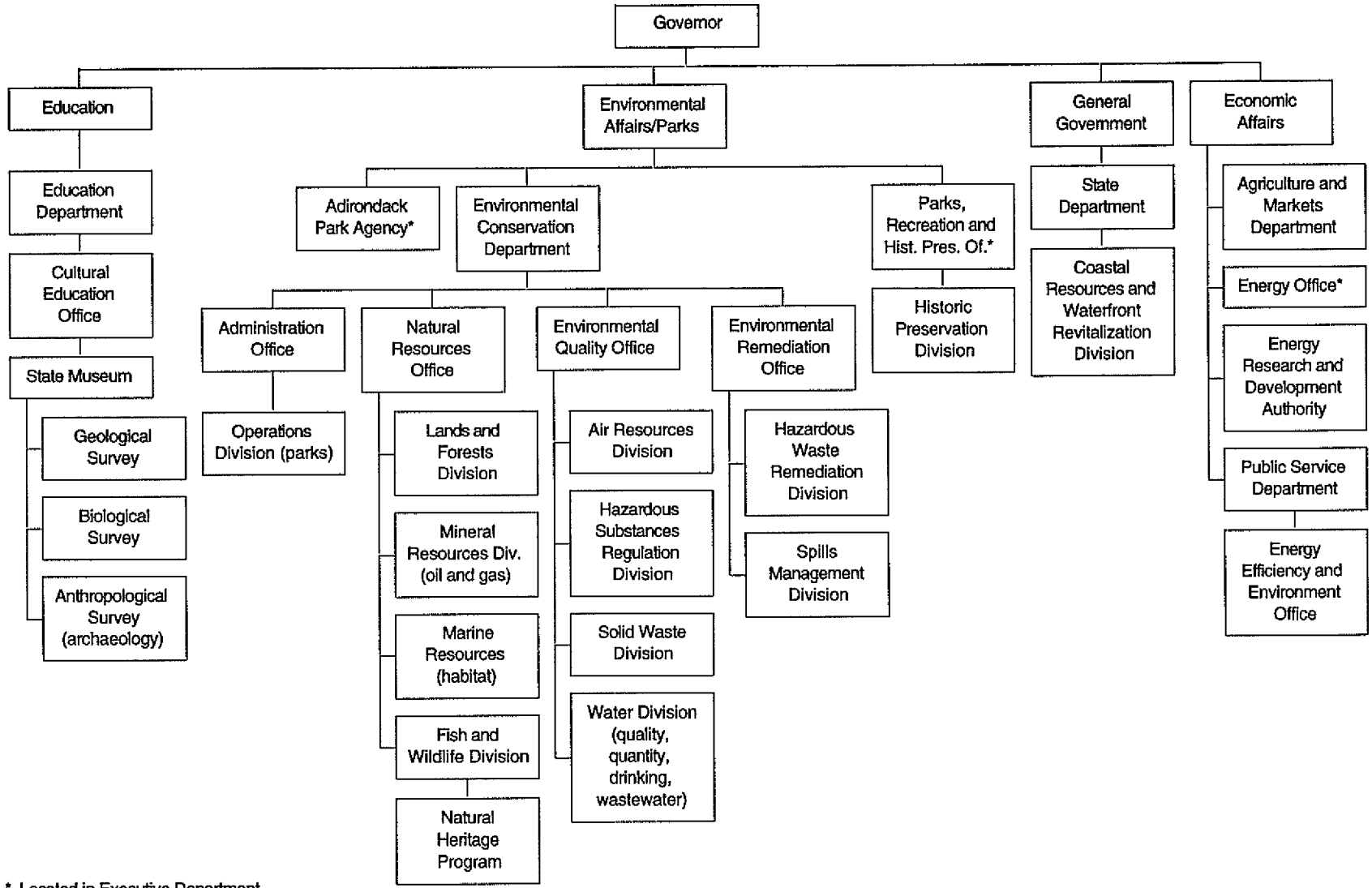
Warnecke, 1994

New Mexico - E/NR


Governor
Public Lands Commission
State Land Office
Cultural Affairs Office
Historic Preservation Division
Archaeologist
Engineer (water quantity)
Environment Department
Water and Waste Mgt. Division (quality)
Hazardous and Radiation Material Bureau
Ground Water Prot. and Remediation Bureau
Surface Water Quality Bureau
Field Operations Division
Drinking Water Bureau
Environmental Prot. Division
Solid Waste Bureau
Air Quality Bureau
Air Pollution Prev. Bureau
Underground St. Tank Bur.
Agriculture Department
Energy, Minerals and Nat. Res. Department
Forestry and Resources Conservation Division
Energy and Conservation Management Division
Parks and Recreation Division
Oil Conservation Division
Mining and Minerals Division
Game Commission
Game and Fish Department
Board of Regents for the N.M. Inst. of Mining and Technology
N.M. Inst. of Mining and Technology
Mines and Mineral Resources Bureau (Geological Survey)
Board of Regents for the University of New Mexico
University of New Mexico
Biology Department
Natural Heritage Program

Warnecke, 1994

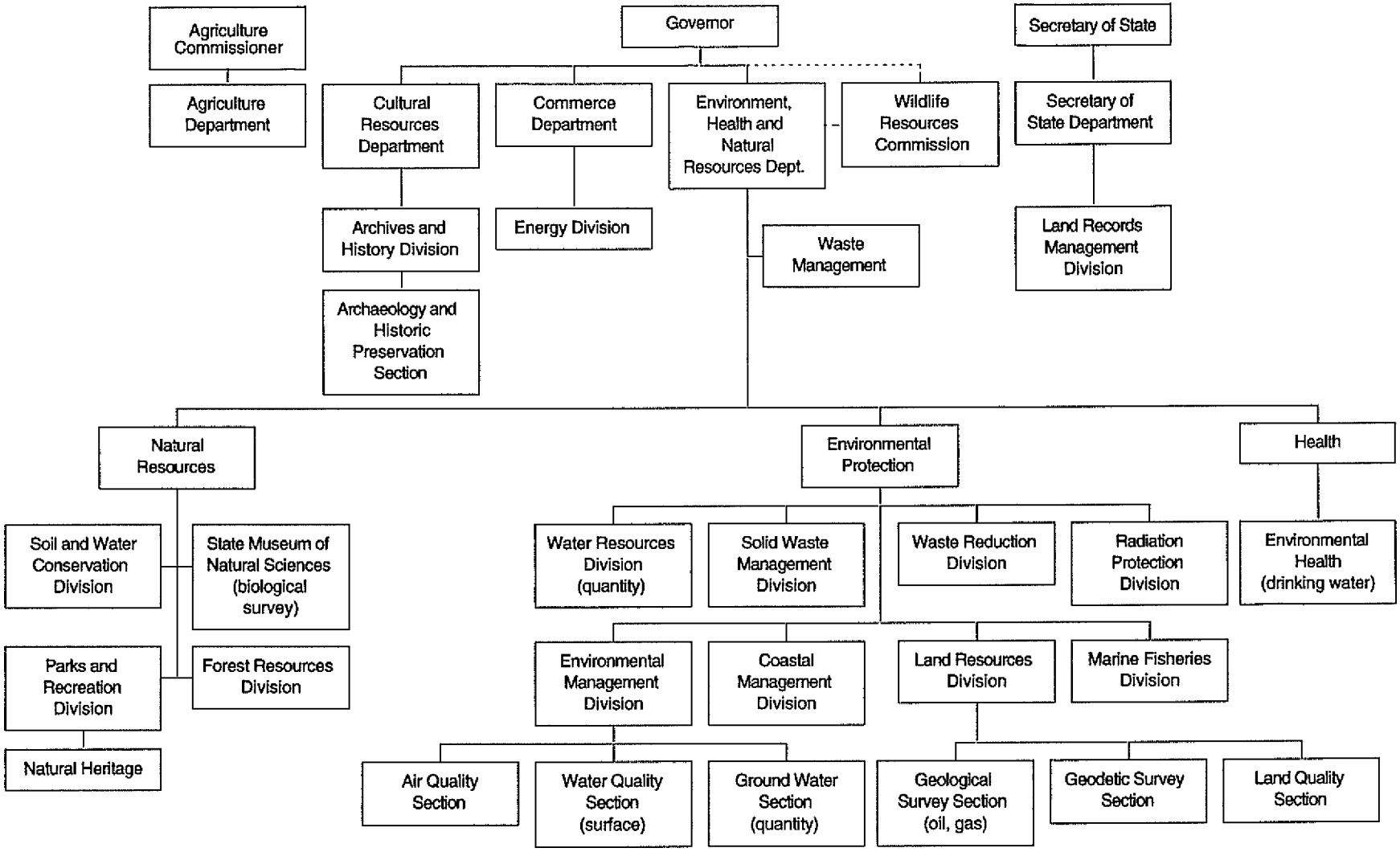
New York - E/NR



* Located in Executive Department

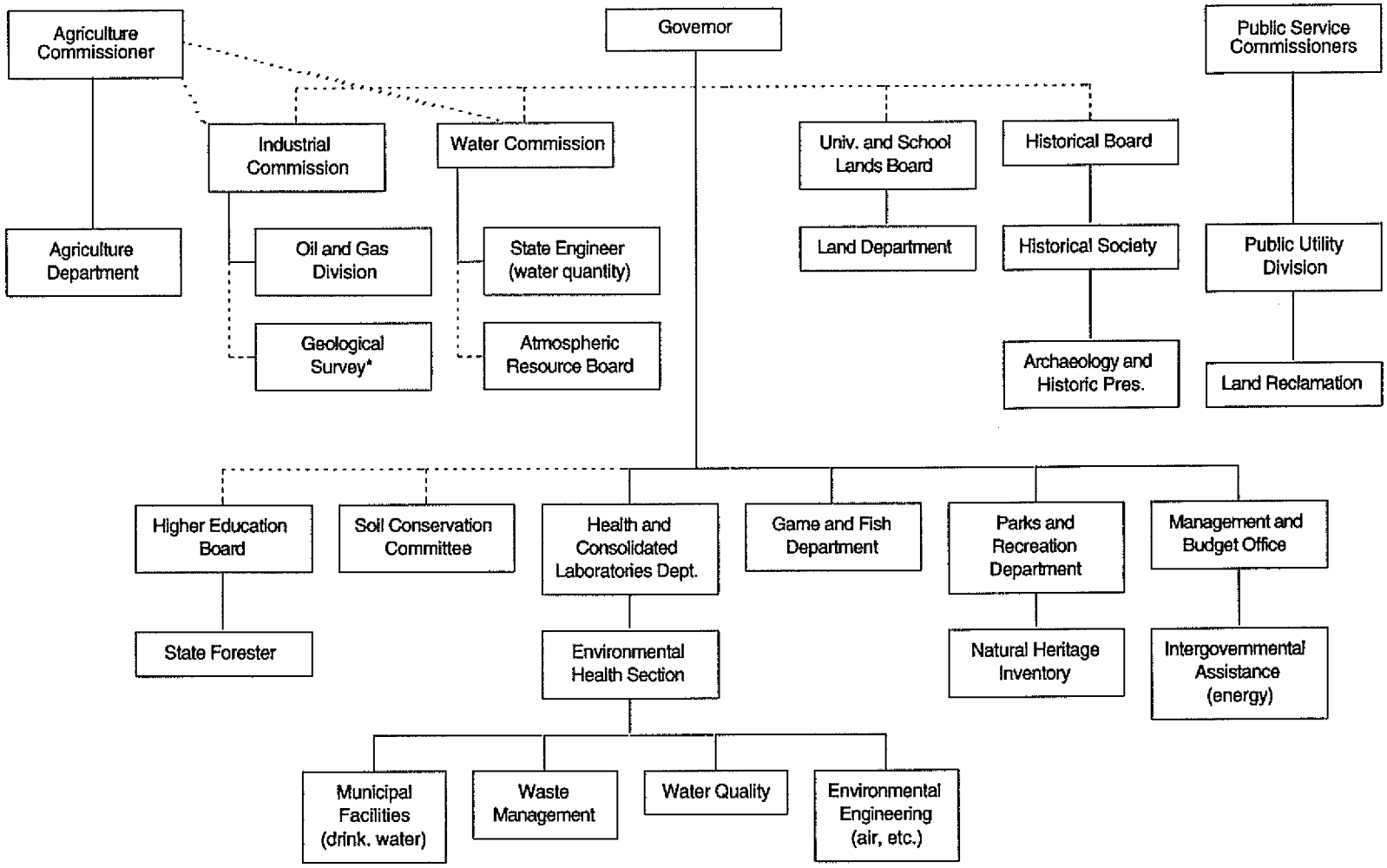
Warnecke, 1994

North Carolina - E/NR



Warnecke, 1994

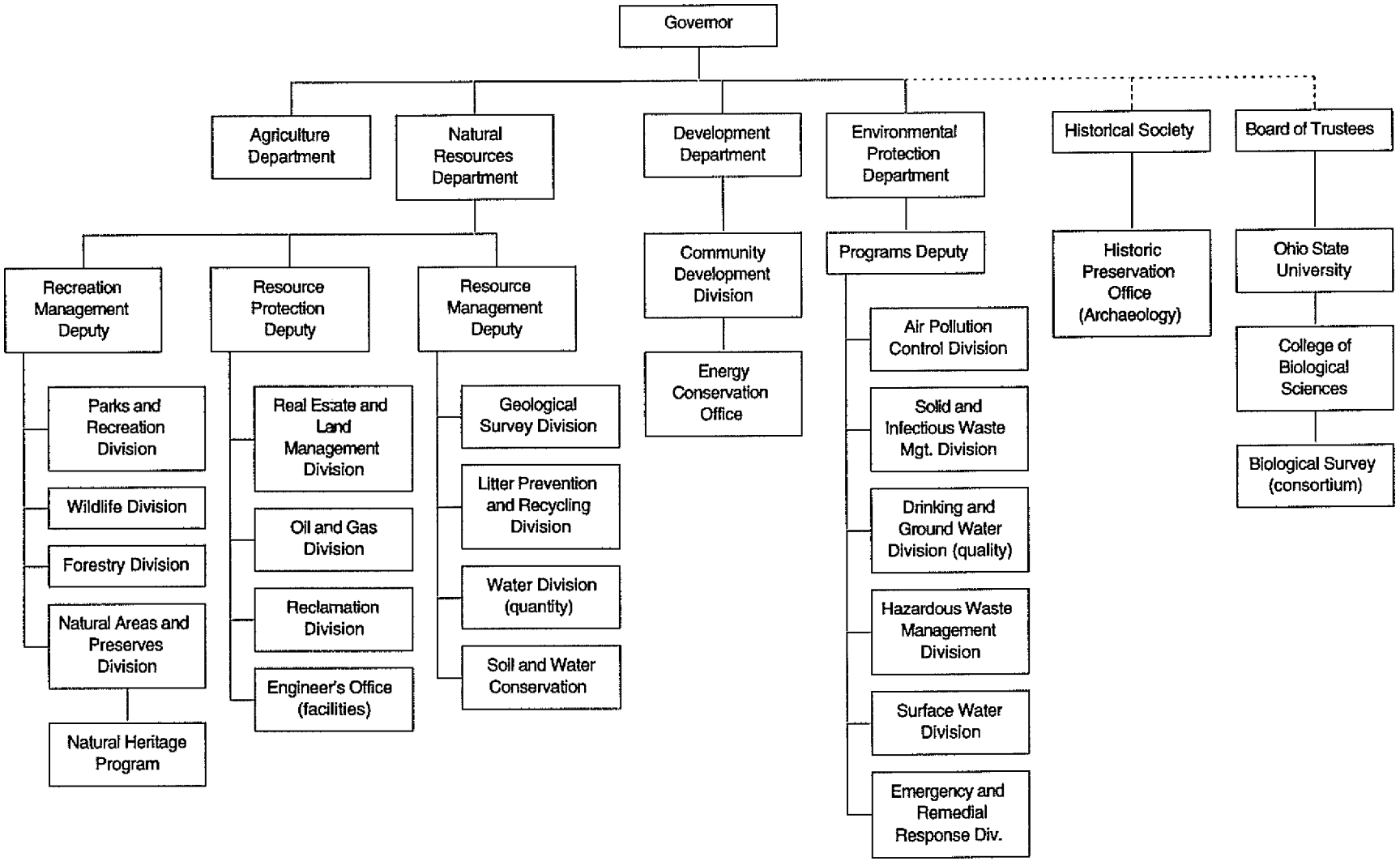
North Dakota - E/NR



*jointly appointed with President of University of North Dakota

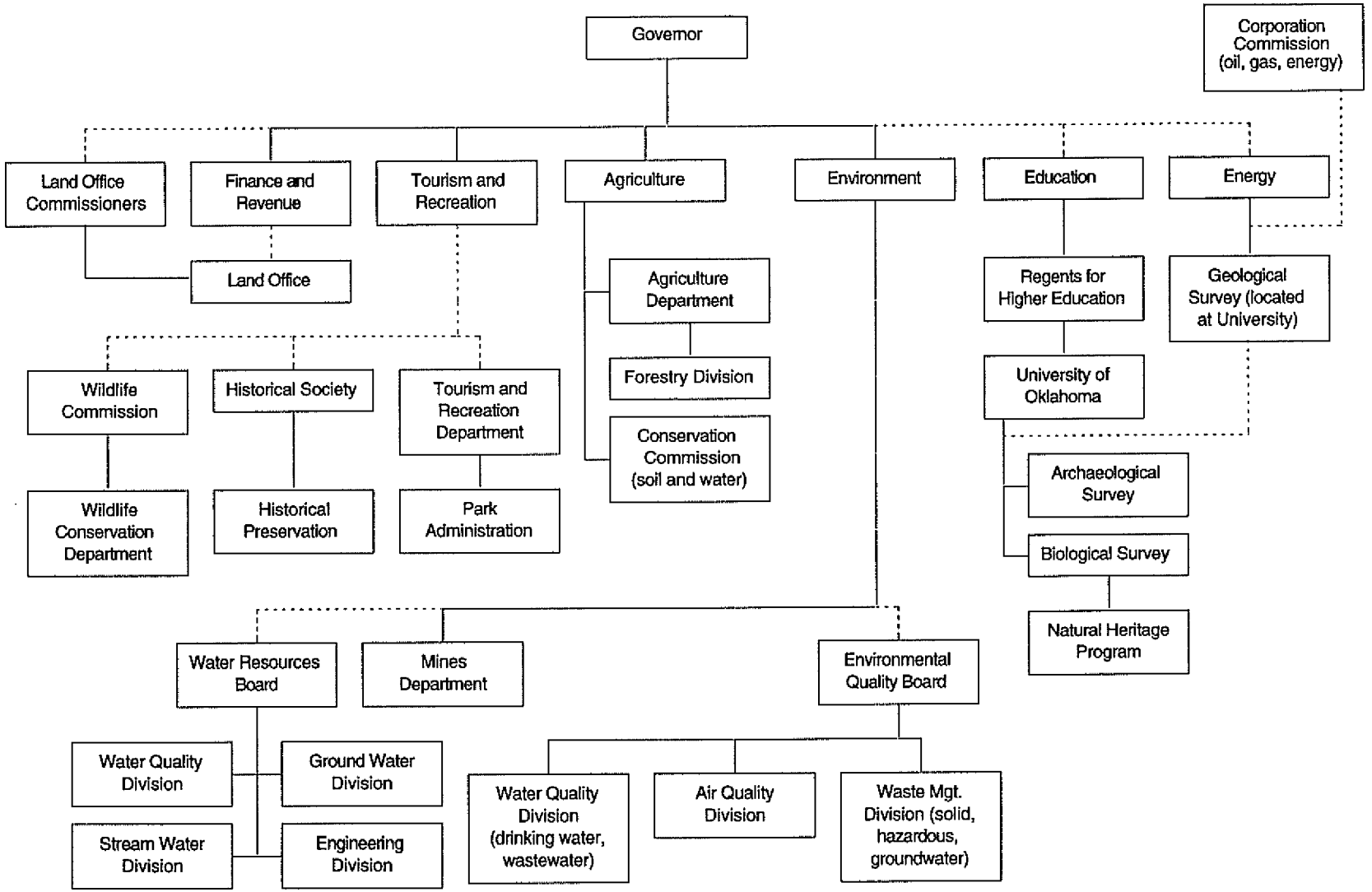
Warnecke, 1994

Ohio - E/NR



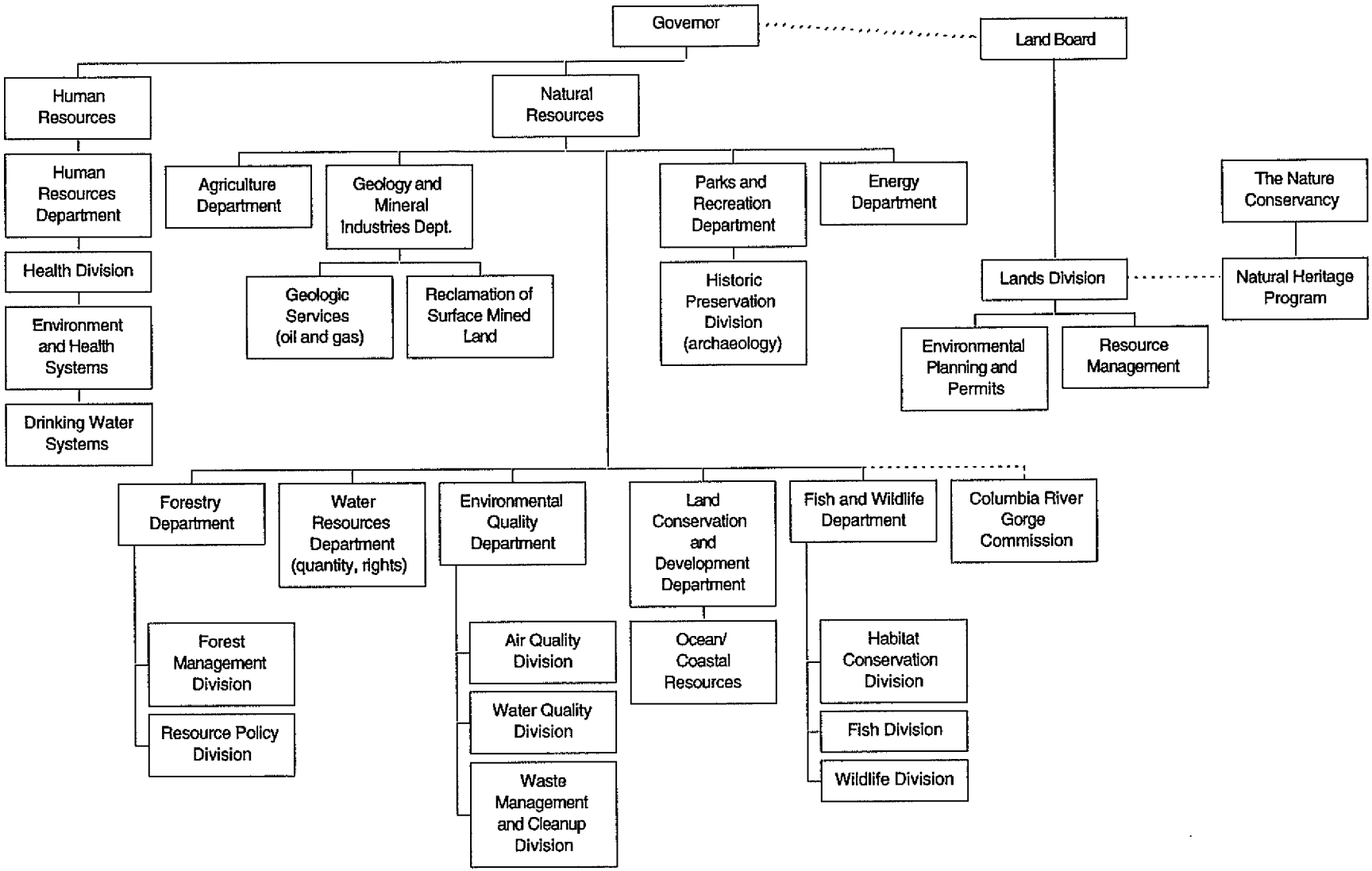
Warnecke, 1994

Oklahoma - E/NR



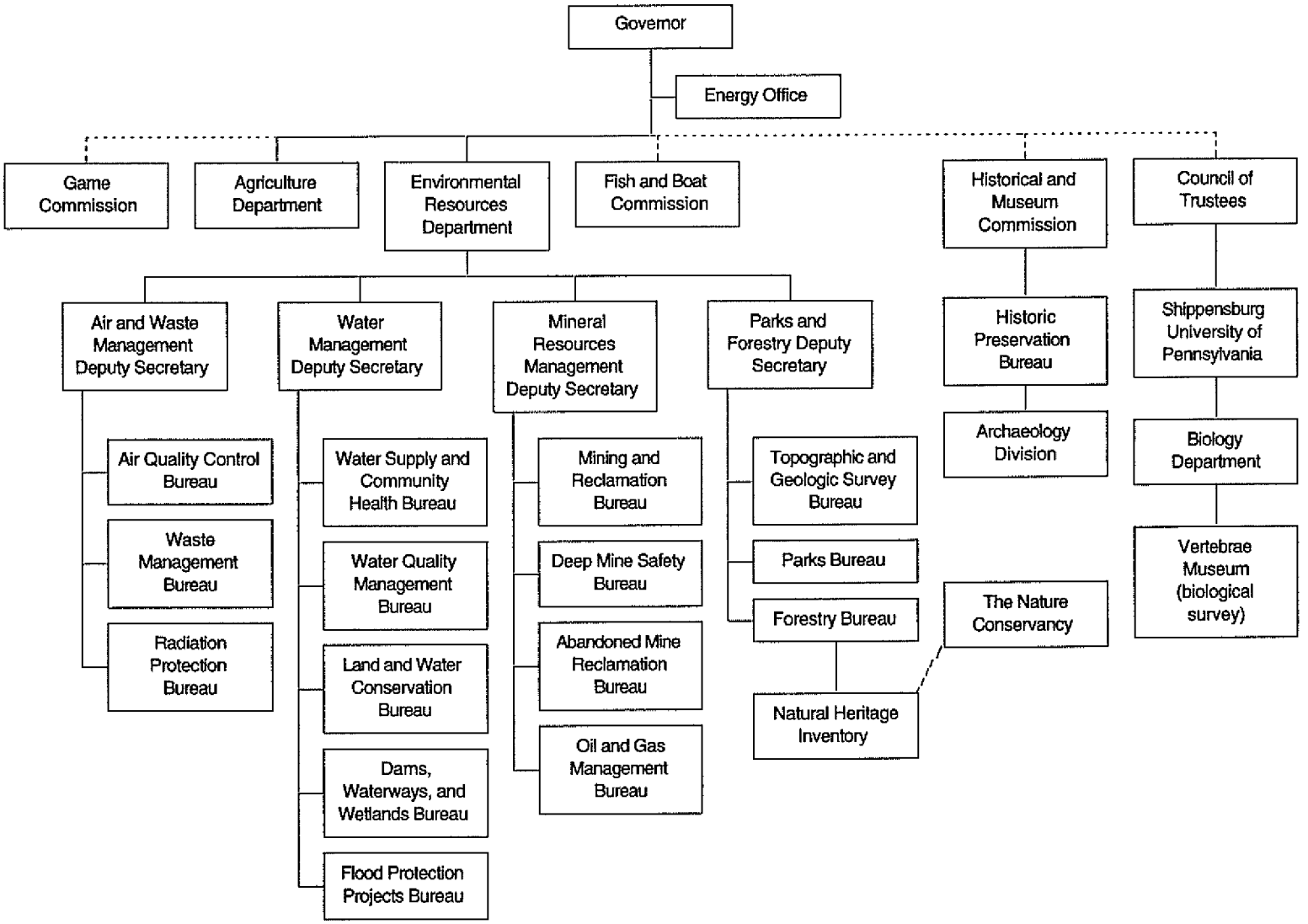
Warnecke, 1994

Oregon - E/NR



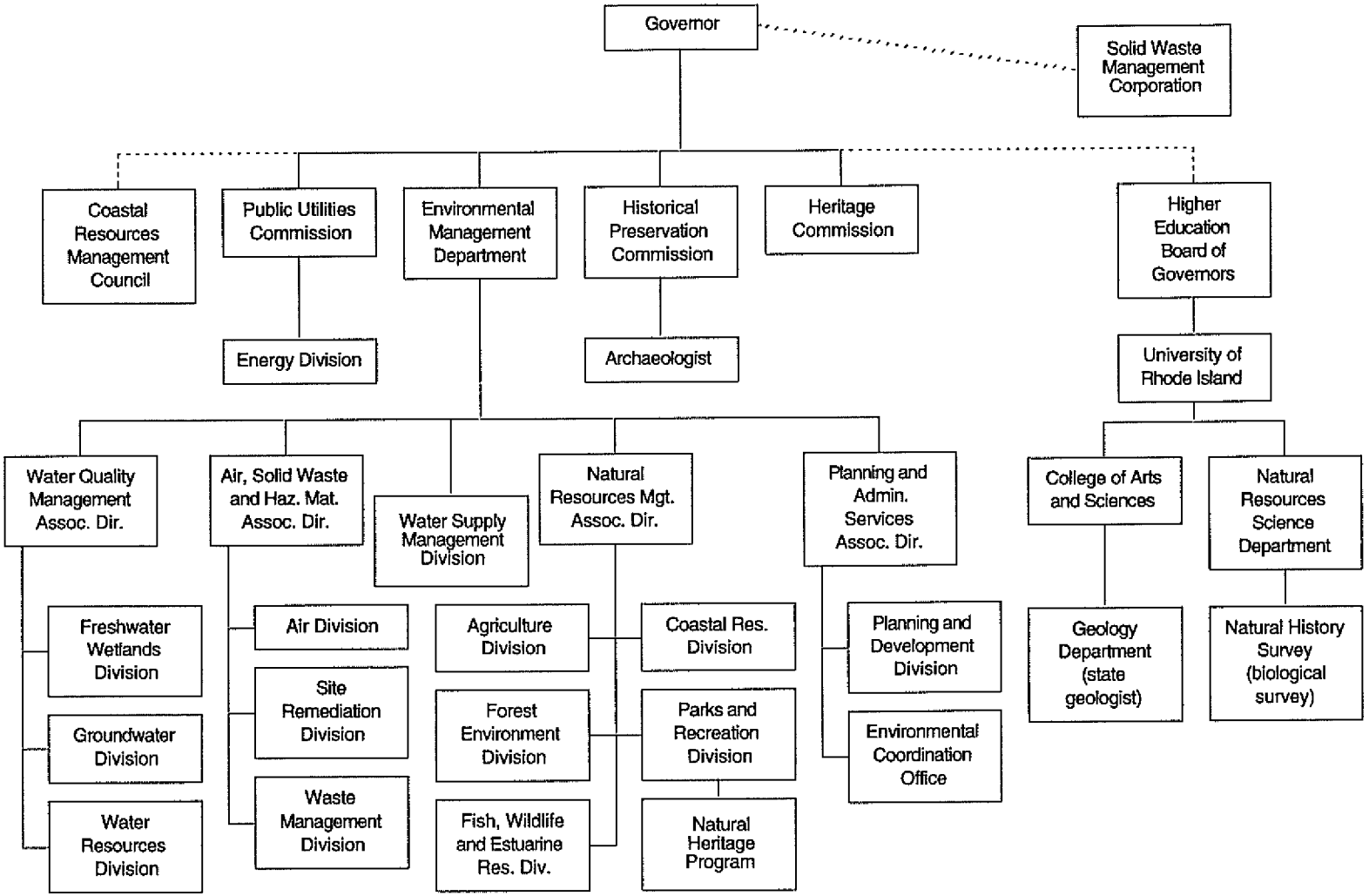
Warnecke, 1994

Pennsylvania - E/NR



Warnecke, 1994

Rhode Island - E/NR

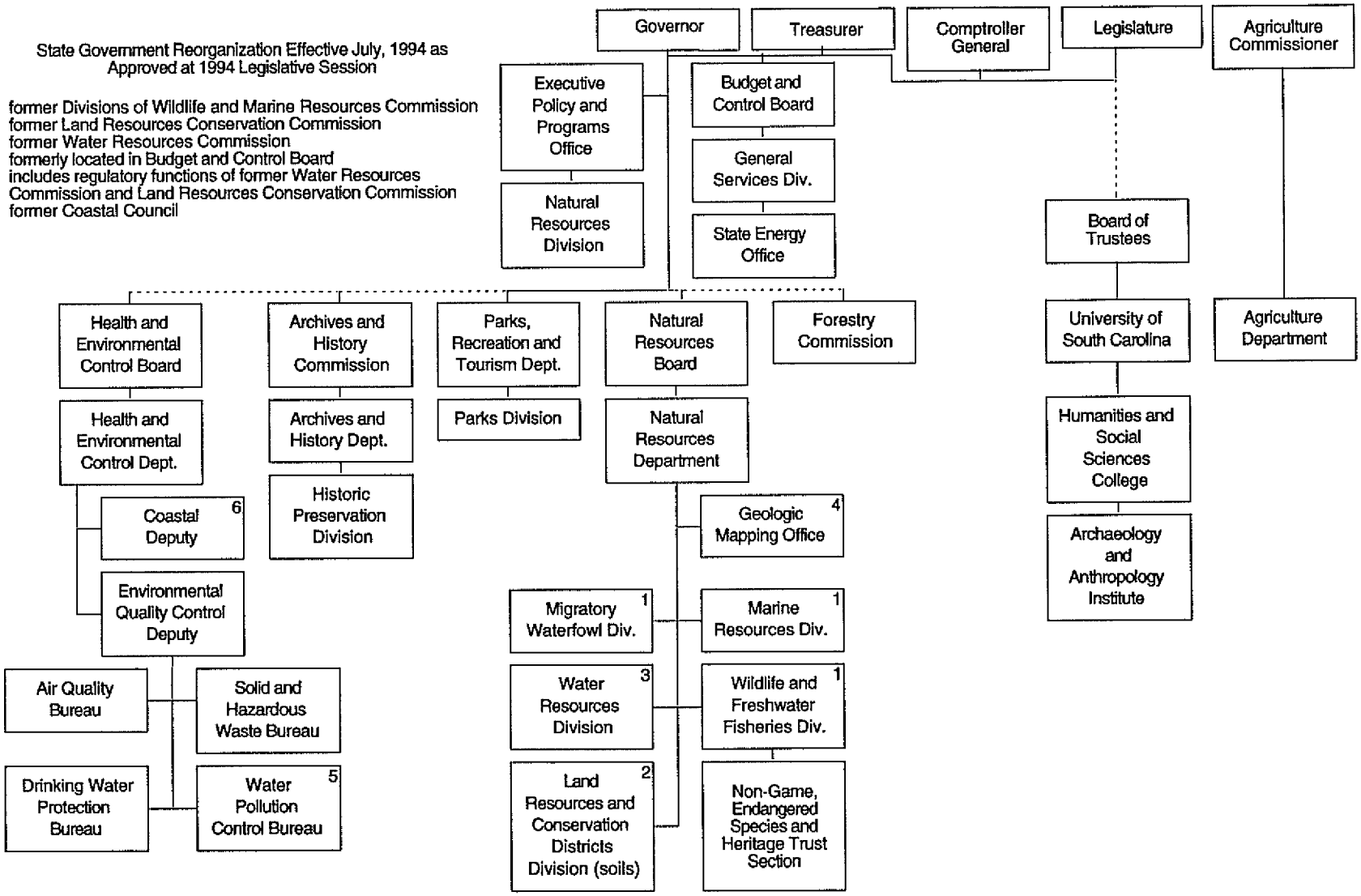


Warnecke, 1994

South Carolina - E/NR

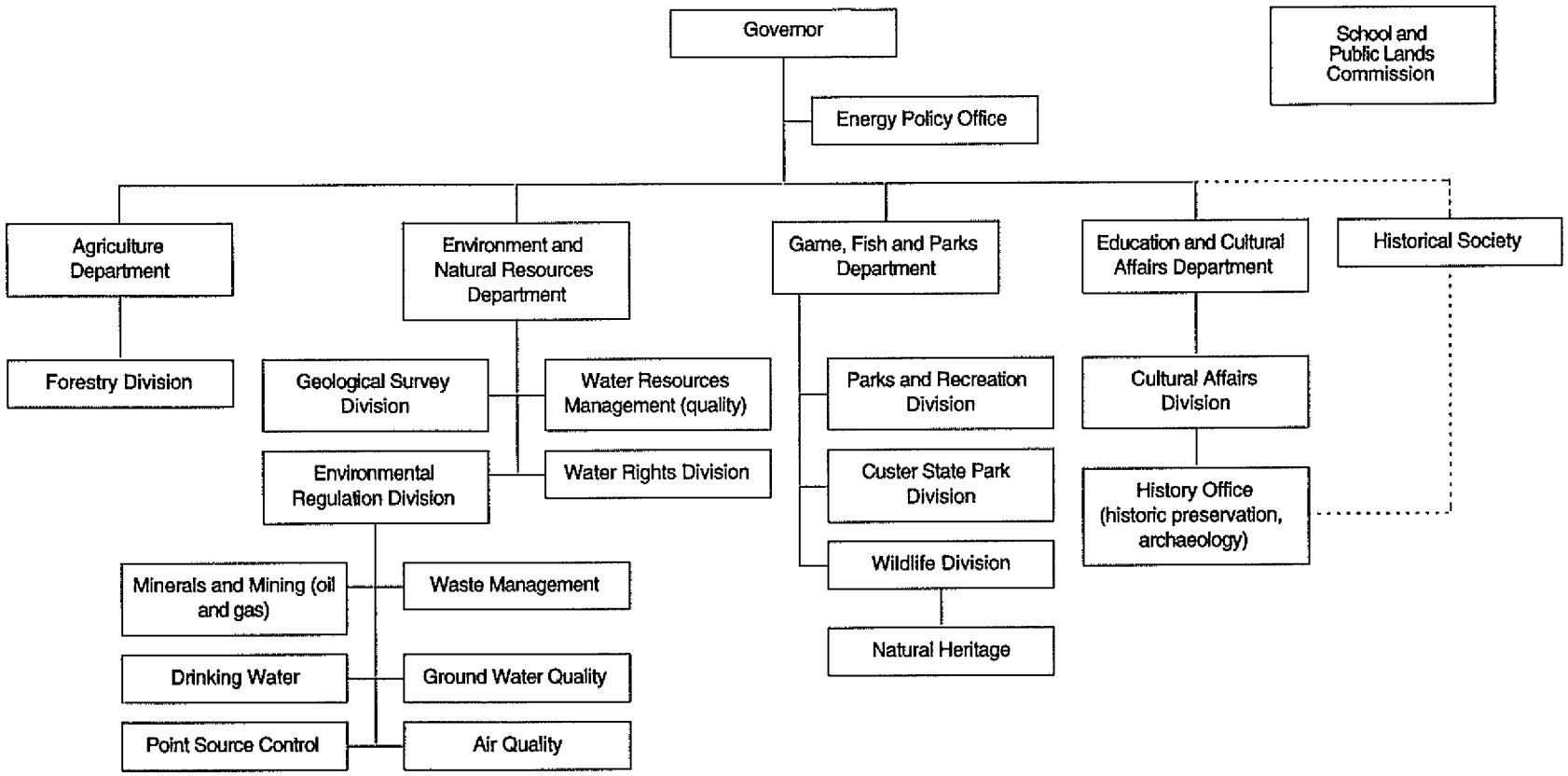
State Government Reorganization Effective July, 1994 as Approved at 1994 Legislative Session

1 former Divisions of Wildlife and Marine Resources Commission
2 former Land Resources Conservation Commission
3 former Water Resources Commission
4 formerly located in Budget and Control Board
5 includes regulatory functions of former Water Resources Commission and Land Resources Conservation Commission
6 former Coastal Council



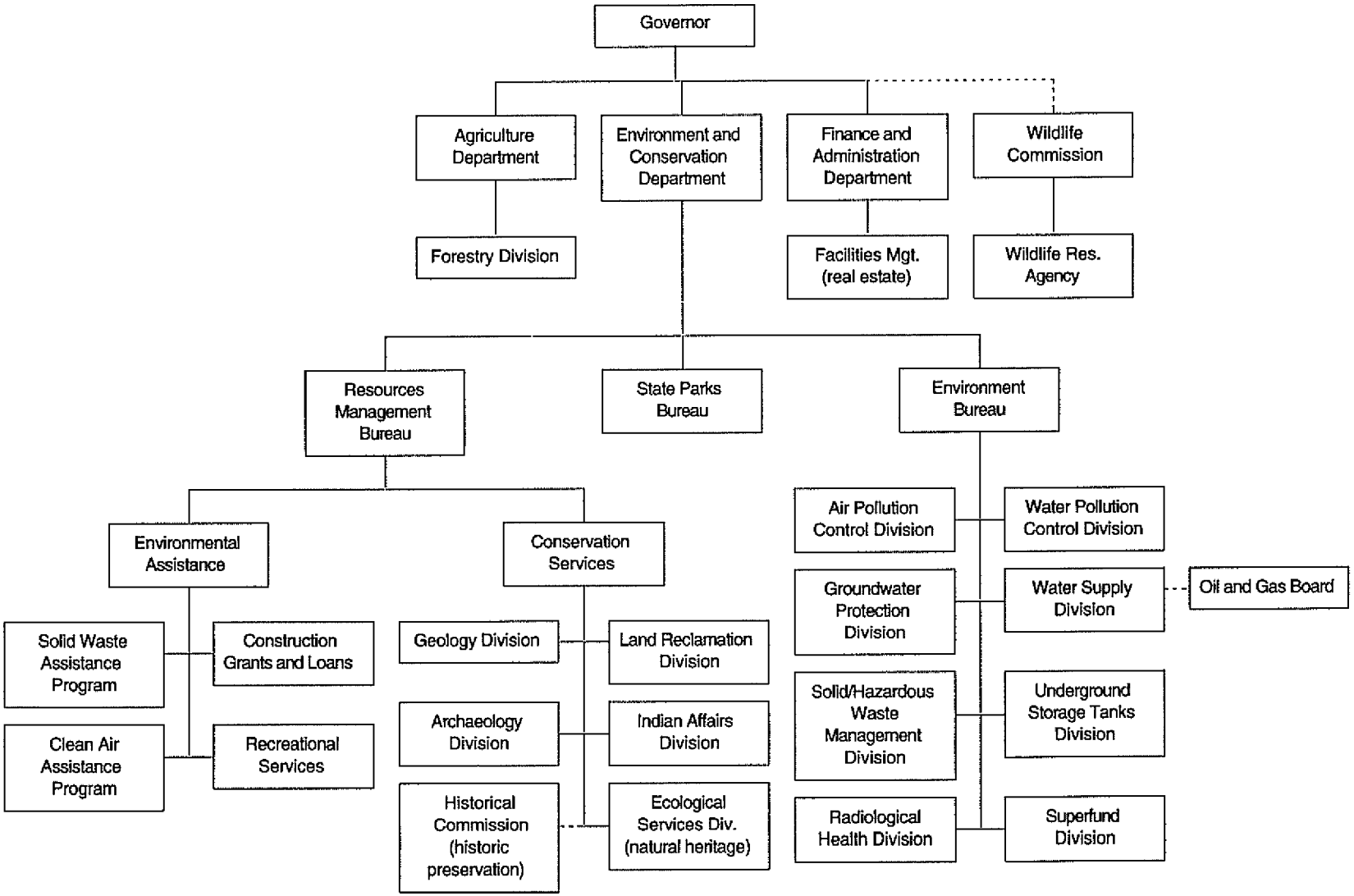
Warnecke, 1994

South Dakota - E/NR



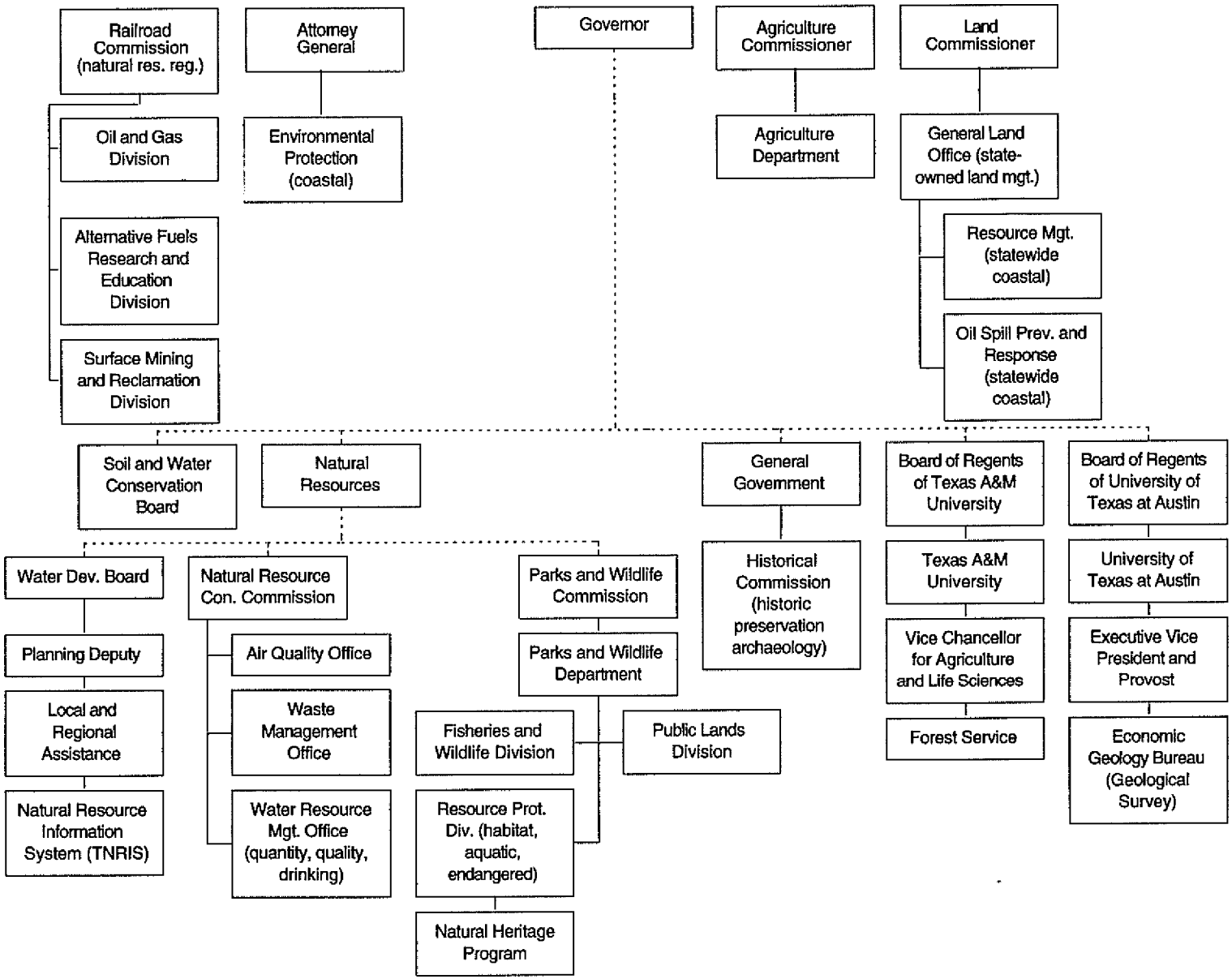
Warnecke, 1994

Tennessee - E/NR



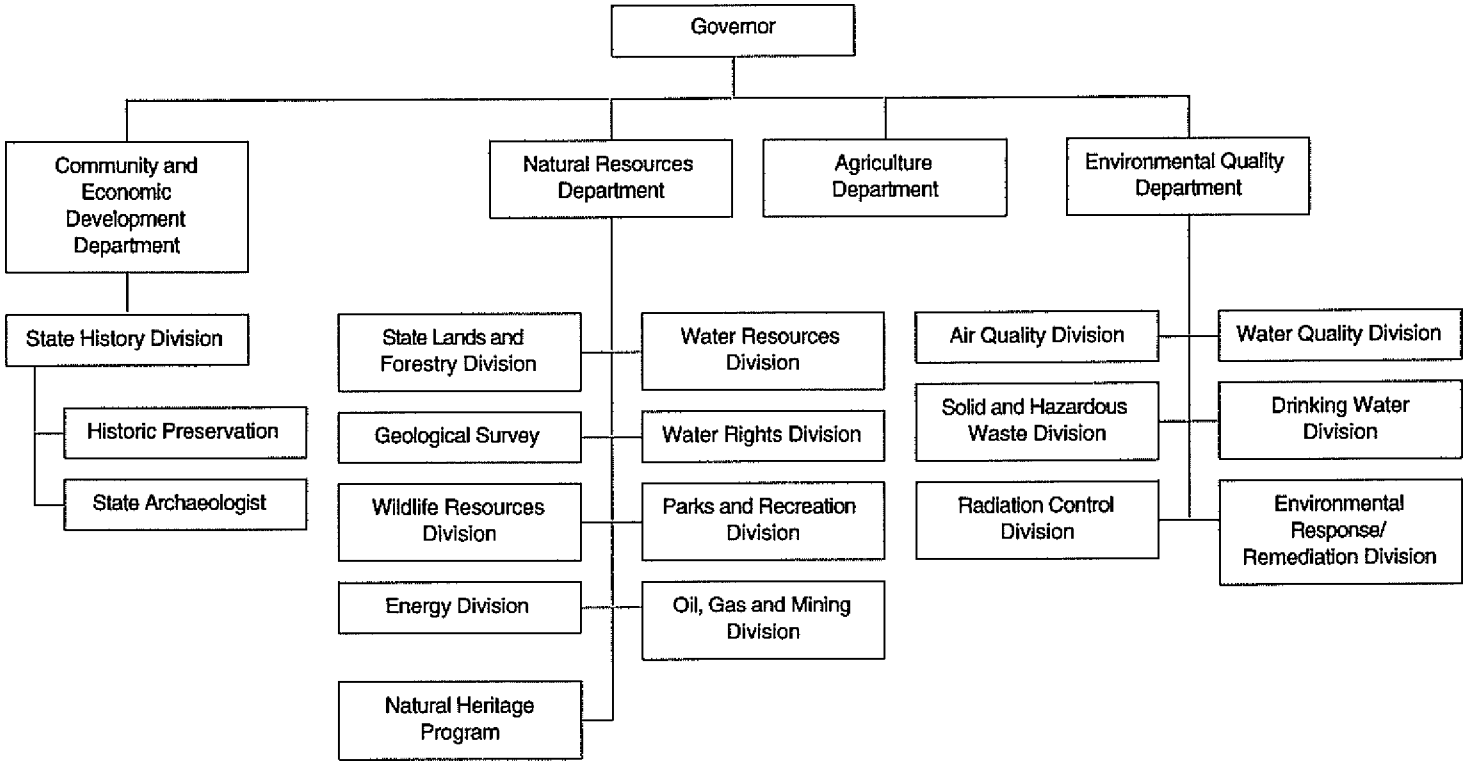
Warnecke, 1994

Texas - E/NR


Railroad Commission (natural res. reg.)
Attorney General
Governor
Agriculture Commissioner
Land Commissioner
Oil and Gas Division
Environmental Protection (coastal)
Agriculture Department
General Land Office (state-owned land mgt.)
Alternative Fuels Research and Education Division
Resource Mgt. (statewide coastal)
Surface Mining and Reclamation Division
Oil Spill Prev. and Response (statewide coastal)
Soil and Water Conservation Board
Natural Resources
General Government
Board of Regents of Texas A&M University
Board of Regents of University of Texas at Austin
Water Dev. Board
Natural Resource Con. Commission
Parks and Wildlife Commission
Historical Commission (historic preservation archaeology)
Texas A&M University
University of Texas at Austin
Planning Deputy
Air Quality Office
Parks and Wildlife Department
Vice Chancellor for Agriculture and Life Sciences
Executive Vice President and Provost
Local and Regional Assistance
Waste Management Office
Fisheries and Wildlife Division
Public Lands Division
Forest Service
Economic Geology Bureau (Geological Survey)
Natural Resource Information System (TNRIS)
Water Resource Mgt. Office (quantity, quality, drinking)
Resource Prot. Div. (habitat, aquatic, endangered)
Natural Heritage Program

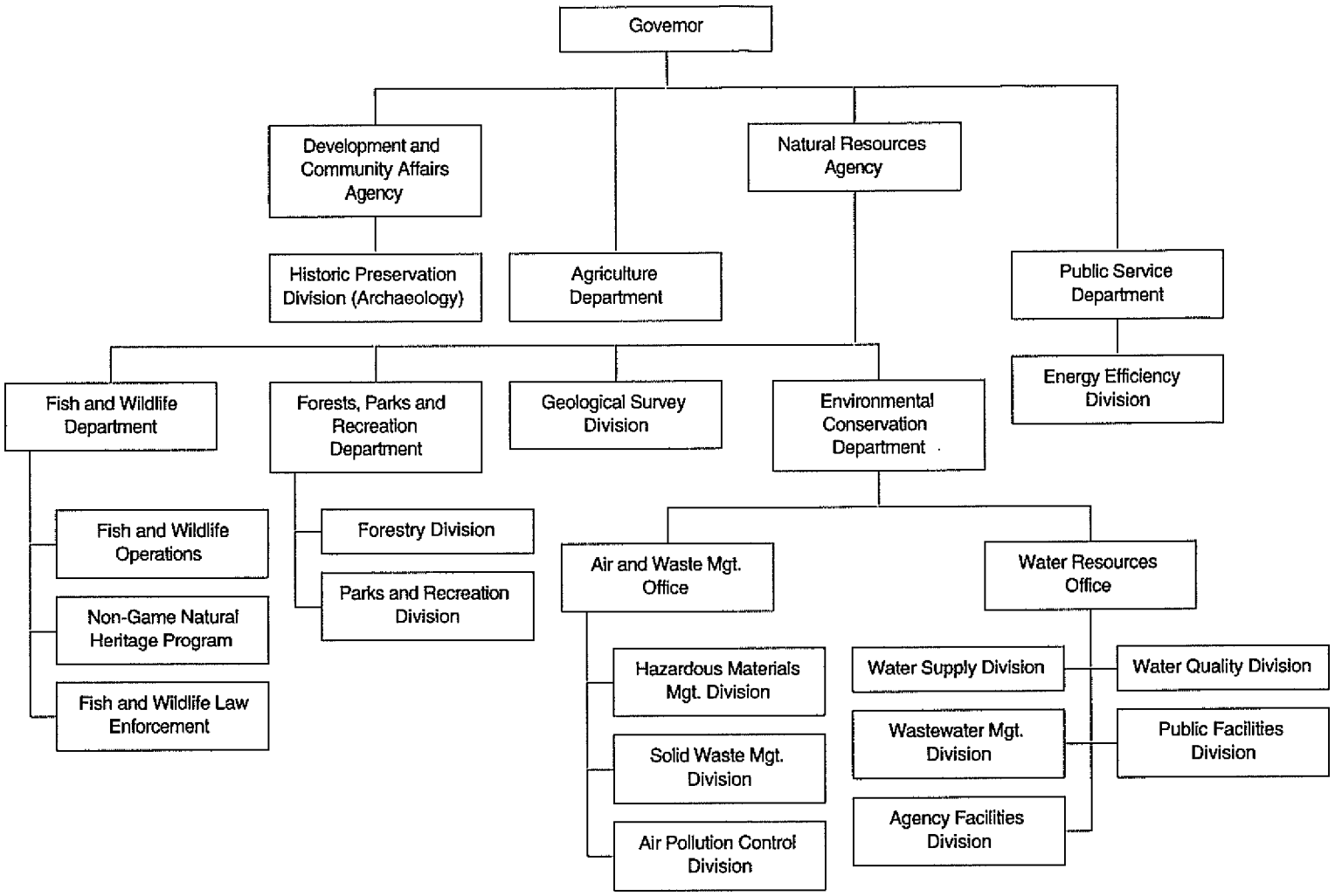
Warnecke, 1994

Utah - E/NR



Warnecke, 1994

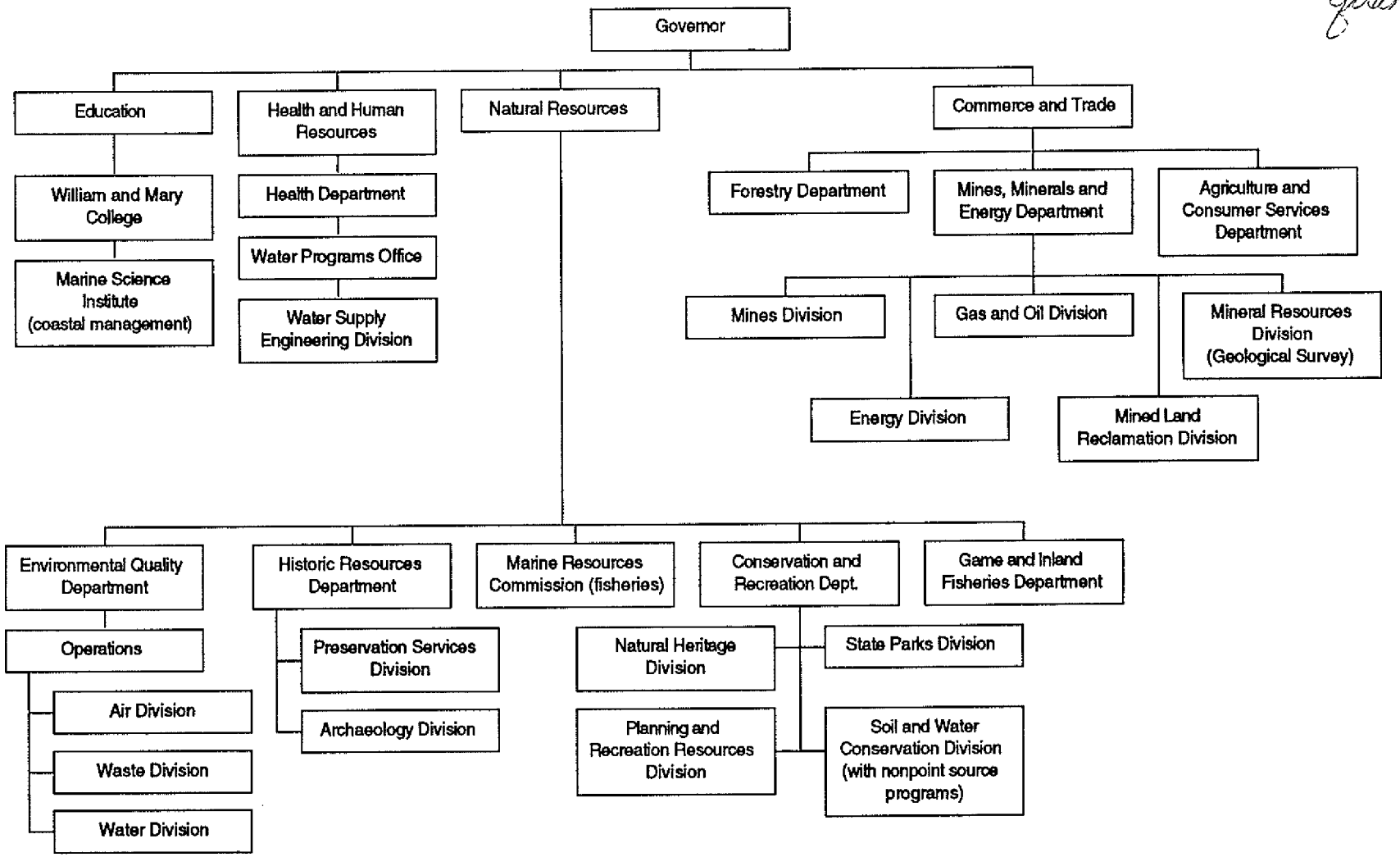
Vermont - E/NR



Warnecke, 1994

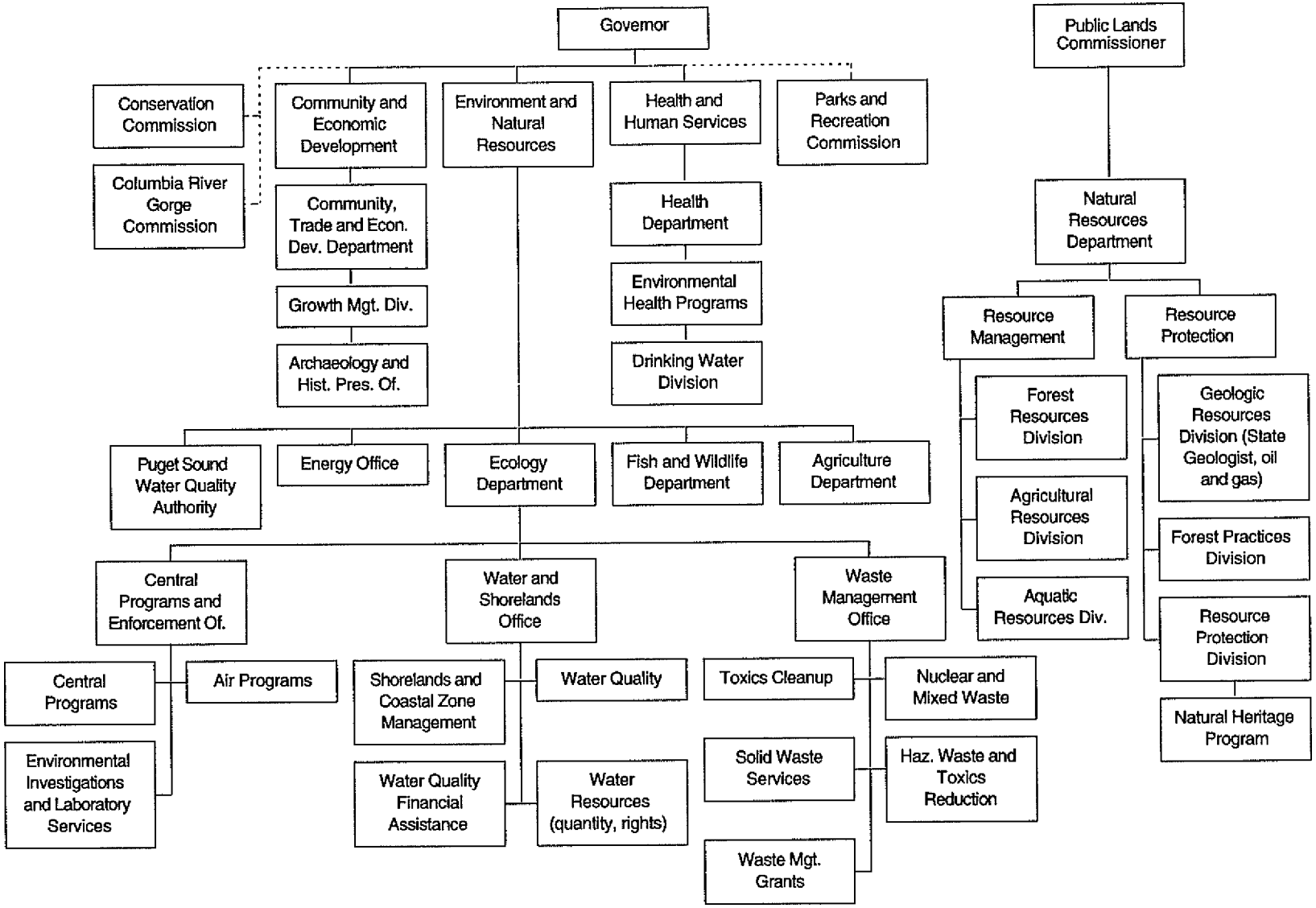
Virginia - E/NR

water control board (water quantity)



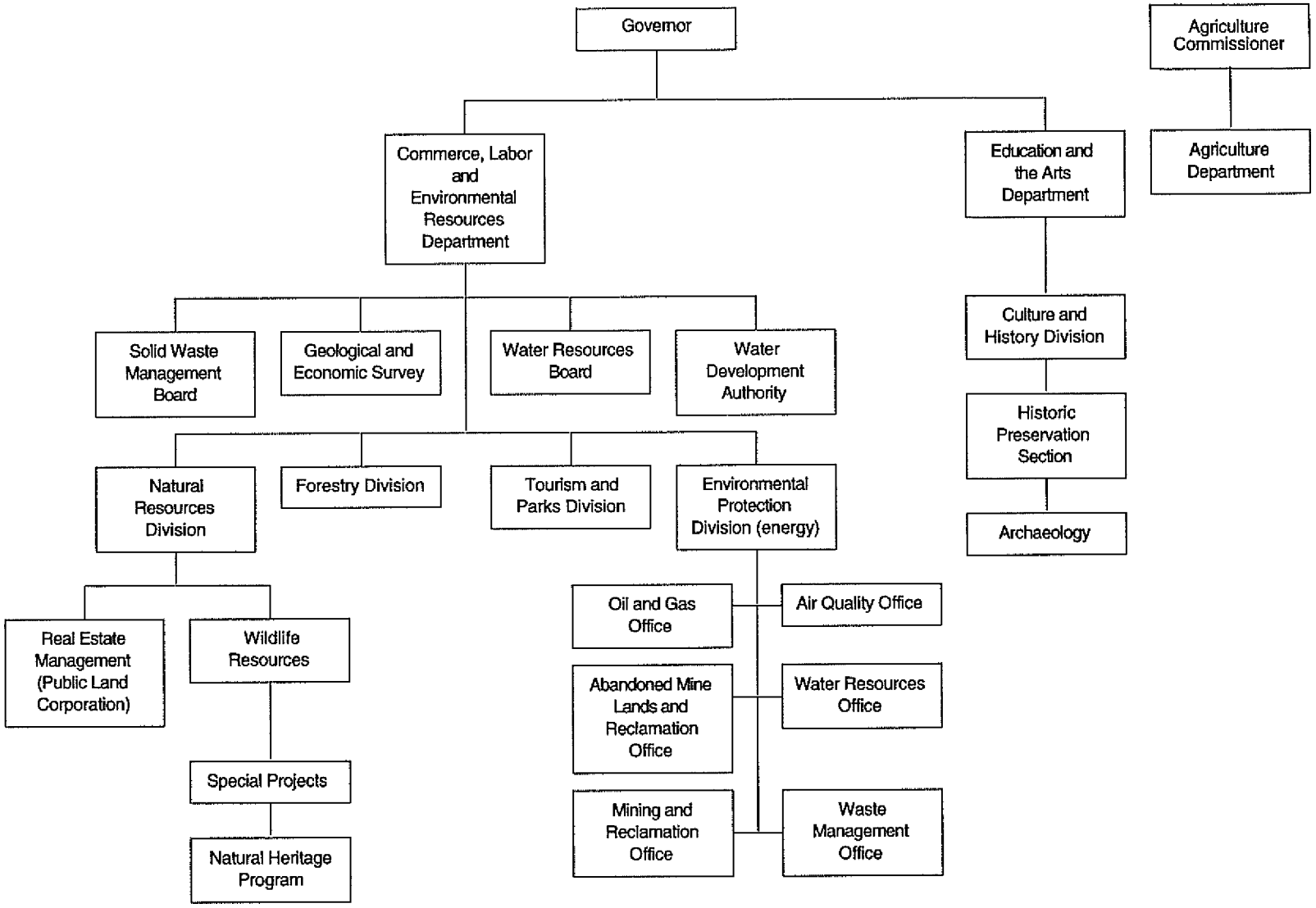
Warnecke, 1994

Washington - E/NR



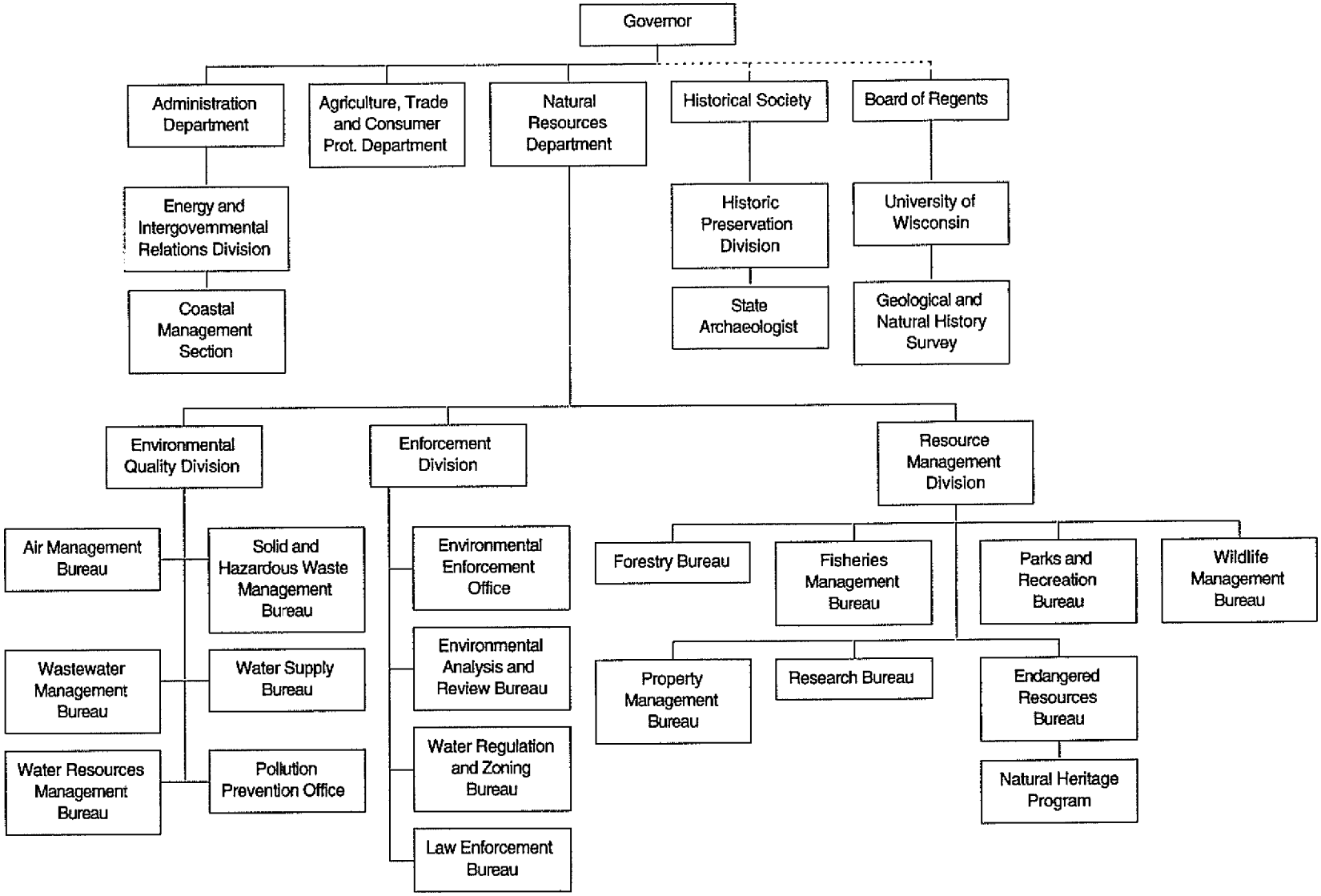
Warnecke, 1994

West Virginia - E/NR



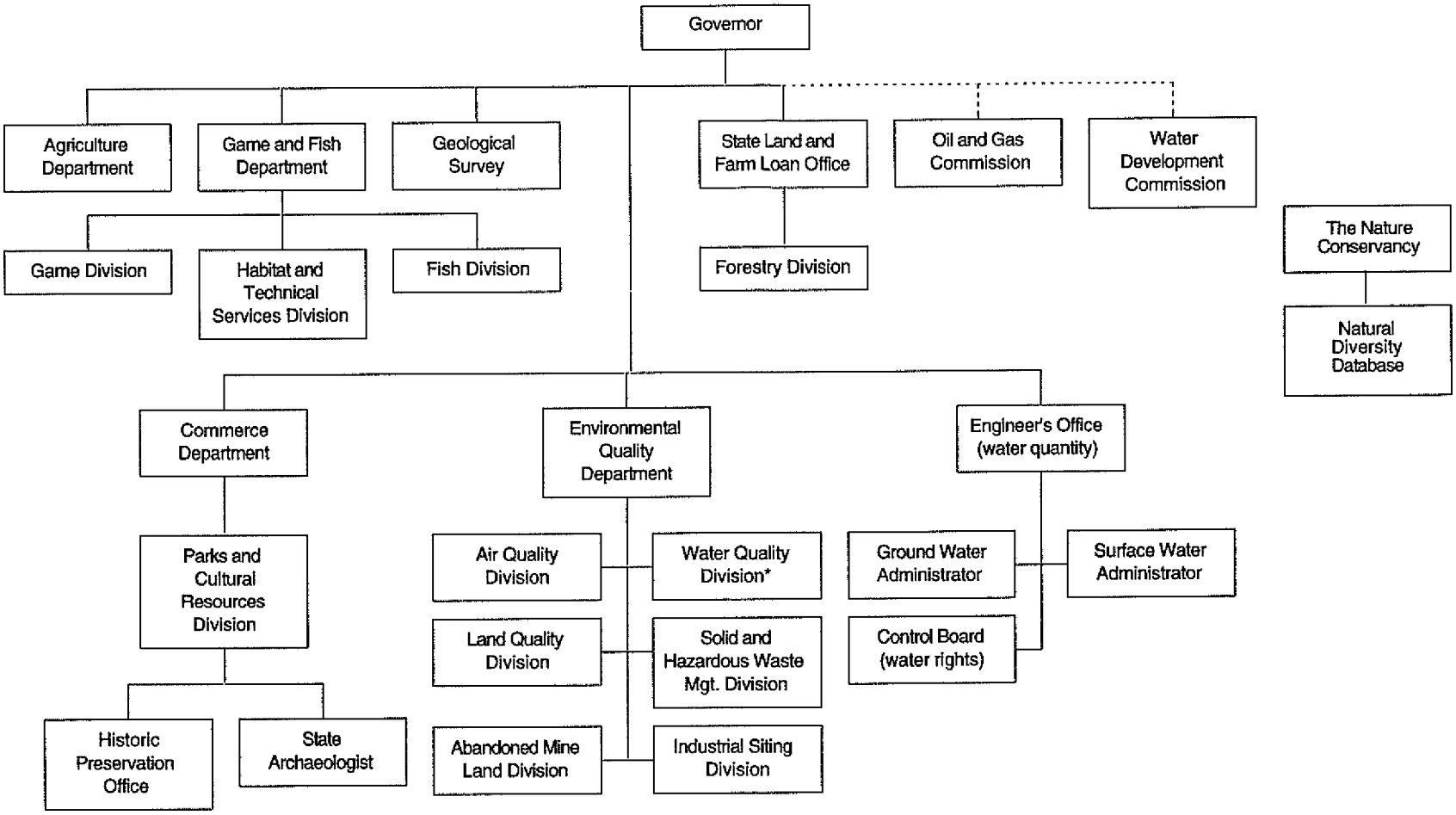
Warnecke, 1994

Wisconsin - E/NR



Warnecke, 1994

Wyoming - E/NR



*U.S. Environmental Protection Agency has primacy for drinking water program

Warnecke, 1994